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MICROSOFT WINDOWS NT READY-TO-RUN

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INFO WORLD

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Good news/bad news: *Vendors with the best on-site service also offer some of the worst. Ed Foster names names.* 60

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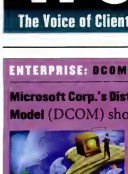
Current Events: *What's happening on InfoWorld Electric, your on-line information outpost.* 62

ENTERPRISE: DCOM BEFORE THE STORM?

Microsoft Corp.'s Distributed Component Object Model (DCOM) should stir things up in the **world of networked objects.** The Object Management Group's CORBA specification **enjoys broad-based vendor support,** but it lacks Microsoft muscle. Will pure popularity catapult one standard over the other? **Or will the competition for the object convention wind up brokered?** *See page 67.*



Microsoft Falcon set to fly

■ Middleware to integrate Windows apps across networks

By Martin LaMonica

MICROSOFT CORP. will significantly accelerate its enterprise computing drive late this year with the release of messaging middleware, code-named Falcon, that integrates Windows applications across networks and links them to other environments, including IBM mainframes and Unix systems.

Falcon, which is similar in function to IBM's MQSeries middleware, provides a reliable messaging backbone for passing data between 32-bit Windows applications using a store-and-forward architecture, said Patrick Questembert, Falcon program manager at Microsoft.

In addition, Microsoft plans to integrate Falcon with MQSeries to provide a way to tie Windows environments into larger, mixed environments.

"The combination of [Microsoft's Falcon and IBM's MQSeries] is pretty striking," said Don DePalma, senior analyst at Forrester Research Inc., in Cambridge, Mass. "You're giving all of tomorrow's systems a bridge to the corporate systems of record, like the CICS and IMS [mainframe transaction systems]."

Microsoft has contracted with a third-party developer, Level 8 Systems, in New York, to build the gate-

▹ **FALCON** *page 22*

PRODUCT REVIEW We look at the next generation of network operating systems: Microsoft's Windows NT 4.0 and Novell's Green River

By Brooks Talley

WITH BOTH Microsoft Corp. and Novell Inc. planning upgrades to their network operating systems (NOSes) later this year, perhaps the biggest surprise is the similarity of the two betas; Novell's NetWare Green River and Microsoft's Windows NT Server 4.0, Beta 2, are both incremental upgrades. It seems that both companies are comfortable with the foundations of their

▹ *continued in* PRODUCT REVIEWS, *page 101*

▹ Microsoft's Back-Office politics: How the plan is coming together. Page 102

Pentium Pro times four

■ HP, Compaq ready high-end servers

By Deborah DeVoe and Tom Quinlan

THE FLOOGGATES for Pentium Pro servers are starting to open wide as Hewlett-Packard Co. and Compaq Computer Corp. ready product introductions and IBM starts shipping its server this week.

HP will announce its Pentium Pro NetServers this week, with Compaq following with its announcement of Pentium Pro ProLiant 5000 systems June 3.

HP will fill out its Windows NT-based NetServer line with a quad-processor NetServer LX Pro; a dual-processor LH Pro; and an upgradable Pentium model, the LH Plus, sources said.

▹ **PRO SERVERS** *page 22*

Legacy link

Sun turns to Ice Tea to bolster Java

By Ted Smalley Bowen

IN AN EFFORT TO hasten the acceptance of its nascent Java programming language in mainstream corporate IS, Sun Microsystems Inc. is working to bolster Java's links to legacy and client/server applications.

Toward that end, the company is readying low-level networking middleware, code-named Ice Tea, that promises to connect Java-based clients to the greater enterprise via a reliable and secured socket-level TCP/IP network connection.

"Ice Tea is a prototype. We're trying to explore ways of easily converting existing applications to allow them to have a Java front end, or universal client," said Larry Weber, vice president and general manager of SunSoft Inc.'s develop-

▹ **ICE TEA** *page 22*

▹ JavaOne conference will percolate with hot new developments. See page 8 for details.

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XTRA INTRANET & NETWORKING REVIEWS INSIDE

Enterprise network integration

NT gets mainframe log-on from Proginet

By Paul Krill

MICROSOFT CORP. and Proginet Corp. are developing a single sign-on solution for Windows NT servers and IBM hosts, including mainframes and AS/400 systems, as well as Novell NetWare 4.1.

The proposal could dramatically streamline LAN and host administration on networks that include mainframe, AS/400, Windows NT, and Novell Inc. software.

Scheduled for beta testing in June and final release later this year, the solution will include a Windows NT Server component to be bundled with the next version of Microsoft SNA Server PC-host connectivity software. Proginet will offer a host component called SecurPass, which will synchronize LAN passwords with AS/400, IBM's RACF (Resource Access Control Facility), CA-Top Secret, and CA-ACF2 host-security systems. Pricing is not set.

Users will also get a single sign-on to NetWare 4.1 and Novell Directory Services (NDS), provided they have SNA Server and NT Server and use the NT unified sign-on function, said Joe Mohen, chief technology officer at Proginet, in Garden City, N.Y.

"The deal is that we're announcing a single sign-on for AS/400 and mainframes [and NT]," said Vesa Suomalainen, Microsoft general manager of SNA Server products, in Redmond, Wash. "Basically, if you sign on to NT, you don't have to sign on to these host systems separately."

Microsoft and Proginet's plans would make it much easier to administer and utilize mixed PC-host environments, an analyst said.

"Right now, if you have an application and you want to log on to it, you have to log on to the mainframe and know where everything is," said analyst Frank Dzubeck, president of Communications Network Architects Inc., in Washington. "Now you log on to the network just once. ... It solidifies the enterprise, and it overcomes one of the serious problems, which is that every time a customer wants to look at [an application or file] he has to have security permission to get to it [on each platform]."

In a blow to Novell, Proginet had planned to port Novell's NDS to IBM's MVS platform. However, the new Microsoft/Proginet solution will replace the NDS/MVS proposal because of market demand for Windows NT, Mohen said.

The sign-on function will automatically log in users to a host security system when they start a 3270- or 5250-emulation session. User passwords are kept synchronized in both PC and host environments, no matter where a password change occurs. The single sign-on feature gives the host user's name and password as the security parameters for APPC (Advanced Program to Program Communications) applications accessed from a desktop application.

The planned solution will work with Windows-based desktop clients as well as with OS/2 and Macintosh desktops.

A graphical administration tool will be provided to manage mapping between host and NT Server accounts. Although passwords are synchronized, user IDs do not have to be identical between systems.

SUNSOFT TO SHIP WEB NFS WITH BROWSER ACCESS

AT DEADLINE

SunSoft Inc., a subsidiary of Sun Microsystems Inc., will unveil Web NFS this week at the JavaOne developer's conference in San Francisco. The Web NFS protocol, formerly known as Public NFS, will be released by early June. SunSoft hopes Web NFS will leverage 10 years of network file system (NFS)-installed technology on enterprise networks by making the product usable via a Web browser. The company will present the specification to the International Engineering Task Force next month and hopes to have the request for comment process concluded by the third quarter of this year. SunSoft officials said Web NFS could speed download times for Web pages and images by a factor of 3 via the Internet and by a factor of 10 via an intranet. Company officials also indicated Web NFS would be the server end of a thin-client configuration.

MERLIN TO GAIN SYSTEMS MANAGEMENT

IBM this week will announce systems management features to be included in Merlin, the next release of OS/2 Warp. The Merlin desktop will display an icon that will launch applications from IBM's NetFinity family of management products. Applications will include a help desk, software distribution, and asset management. In other news, IBM will announce next week at spring Comdex an enhanced version of its Voice Dictation product for Windows 95. The new version is expected to incorporate some of the voice-navigation features that will be part of the next version of Merlin.

LOTUS PREPARES INTEGRATED MESSAGING

Lotus Development Corp. will announce its Integrated Messaging System, a combination of e-mail and voice mail, at spring Comdex next week. The product is the result of a combined development effort by Lotus and Lucent Technologies Inc. and works with Lucent's voice products. Separately, Lotus last week announced FastCall for Lotus Notes, a call-management product that provides Caller ID, call routing, and the automatic launching of applications related to an incoming call. FastCall will be available in June.

DIGITAL WILL EASE DATA CONVERSION

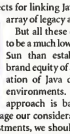
Digital Equipment Corp. this week is expected to announce a series of tools that will help corporate users more easily convert and move data from OpenVMS servers to Windows NT desktops. The company will also announce enhanced messaging and Internet capabilities that will improve the communications capabilities between the two platforms.

BRIEFLY NOTED: ▶ SUN will this week announce Java management tools. Java Powered Management will allow developers to create cross-platform network and systems management applets that are portable over the Internet. **▶ NETSCAPE COMMUNICATIONS CORP.** released the Beta 4 version of LiveWire and LiveWire Pro last week. Beta 4 is available for downloading on the company's Web site. **▶ U.S. ROBOTICS INC.** confirmed a delay of its software for upgrading its 28.8Kbps Winmodem to 33.6Kbps. Users had reported they were unable to download the upgrade. **▶ The DESKTOP MANAGEMENT TASK FORCE** has formed a working committee to develop standards for support management. The Support Management Working Committee will define a protocol for passing trouble tickets and will specify import-export standards for support-knowledge information. **▶ NOVELL INC.** in June plans to enhance software distribution across WANs through a new product release, according to the company. The goal is to make it easier to have applications distributed to multiple servers in an enterprise without requiring dedicated links between sites.

FROM THE NEWS DESK · MICHAEL VIZARD

Sun should look back to Java's future

Right now I'm still not sure whether Java will prove to be a major innovation or just a short-lived industry phenomenon, but I am certain of one thing: If Sun Microsystems Inc. doesn't start focusing its energy on linking Java to legacy systems, all the accolades won't be worth a hill of proverbial coffee beans.



A basic tenet of our industry is that customers will not abandon their existing tools and applications, along with the millions of dollars they have invested, just to be on the cutting edge of technological innovation.

Microsoft Corp. understands that fact all too well. Just about every product the company brings out will favor backward compatibility over innovation in an effort to entice users to upgrade. This is critical, because Microsoft's financial model requires that the bulk of its customers upgrade about every 18 months to compensate for the fact that Microsoft, unlike IBM, draws no significant revenue from maintenance contracts.

Granted, Java and development environments such as Java Workshop will probably be great tools when they are finally cooked, but I can almost guarantee that corporate IS sites are going to be a lot more interested in using their existing tools to generate Java code than they are in learning how to master new tools.

On top of that, IS sites are probably going to find middleware that promises to expose existing applications to Java-aware clients significantly more attractive than developing new Java applications.

As illustrated in Ted Smalley Bowen's Page One story this week, Sun understands these basic issues and is beginning to work on the problem. Sun is also working on linking Java to SQL databases via ODBC, and IBM has a number of projects for linking Java to its vast array of legacy applications.

But all these efforts seem to be a much lower priority at Sun than establishing the brand equity of a new generation of Java development environments. To me, this approach is backward. To leverage our considerable existing investments, we should first focus on making Java compatible with what has gone before and then focus on a new generation of tools to optimize Java down the road.

So is Java an interesting exercise in computer science or a fundamental technological advance for IS shops? Write me at michael_vizard @infoworld.com.

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■ **Why is the press so mixed up about OS/2 and Unix?** Nicholas Petreley is convinced that most of what is written about these products amounts to little more than a wish that these platforms would just disappear. Is he right?

Voice your opinion. Go to http://www.infoworld.com/pageone/forums/forums.htm.

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Sun designed the first intranet server back when people thought intranet was a typo.

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THE NETWORK IS THE COMPUTER™

SIPC systems to rival low-cost NCs

■ Microsoft and Intel promote a fatter thin client

By Tom Quinlan

DEVELOPERS OF THE Network Computer (NC) standard are taking their bows, but by the time those systems are expected to be widely available, Intel Corp. and Microsoft Corp. — both conspicuously absent from the NC specification announcement last week — will strike back with Simply Interactive PC (SIPC) systems and Pegasus-based hand-held devices.

Pegasus, a scaled-down version of the Windows environment with built-in browser capabilities, is expected to debut in a variety of devices this summer. Price points will start at about $500.

Systems meeting the SIPC specification are expected to start shipping from a handful of vendors in the fourth quarter, sources said, with prices ranging from $300 to $1,000.

Toshiba Corp. and Compaq Computer Corp. are expected to be two of the first vendors that will be introducing the SIPC systems for the consumer market this year.

In 1997, more vendors are expected to introduce the low-cost, low-overhead systems, including versions with special Windows 95 enhancements such as advanced power management, and more network management features designed for the corporate user, sources said.

"There's not a user of a PC today that would want to exchange his PC for an NC device," said Dwight Davis, editor of the *Windows Watcher* newsletter.

Although Microsoft wouldn't comment on specific products or introduction dates, Pegasus and SIPC together are expected to meet the NC challenge, Microsoft officials said.

"Microsoft sees a chance for synergy between things like hand-held devices and traditional PCs," said Craig Mundie, senior vice president of Microsoft's Consumer Products Division. "The NC design is trying to eliminate a number of things that Windows makes possible."

Simply Interactive PC ready to take on Network Computer

Processor	*100-, 120-MHz Pentium*
RAM	*4MB minimum*
Storage	*Optional*
Expansion	*1394, Universal Serial Bus*
Graphics	*Accelerated Graphics Port*
Internet support	*HTTP, HTML, TCP, Java (future)*
Price	*$300 to $1,000*
Available	*Fourth quarter 1996*

Pegasus and SIPC will make computing easier and less expensive without limiting what users can do, Mundie added.

The push behind the SIPC — which will also be eligible to qualify for NC certification when Microsoft adds the Java Virtual Machine to Win95 — is part of Microsoft's strategy to meet customer demand for lower cost PCs. (See "NC no threat, page 17.)

The SIPC specification calls for an enclosed design that won't be accessible to users, a minimum of 4MB of RAM, the Windows 95 OS, connections for television sets or computer monitors, a bay for additional memory, and Universal Serial Bus and 1394 ports for expansion options, sources said.

Intel's contribution will consist of low-cost 100-MHz or 120-MHz Pentium processors and the Accelerated Graphics Port adapter, which will enable lower cost, high-performance graphics cards.

Features, such as built-in hard drives or CD-ROM drives, will vary from manufacturer to manufacturer, as will the price points.

Toshiba and Compaq, which demonstrated prototypes of SIPC systems at WinHEC in San Jose, Calif., in March, are expected to introduce the first systems late this year, sources said.

Final system designs have not been set, but Toshiba is expected to market a diskless set-top box design that could sell for as little as $300.

A more expensive system from Compaq is expected to come with either an internal hard drive or a CD-ROM drive, but will be priced closer to $1000, sources said.

Microsoft and Intel are counting on the expandability, better graphics, and processing power at the local level to fight off the onslaught of the NC devices spearheaded by Oracle Corp., Apple Computer Inc., IBM, Sun Microsystems Inc., and Network Computing Corp.

Those devices are designed primarily to work with Web-based technologies such as HTTP, HTML, the Java programming environment, and TCP/IP.

"They made the specification for NC so large that virtually any PC on the market today can be considered an NC system," said Rob Enderle, an industry analyst for Giga Information Group, a market research company in Santa Clara, Calif.

Applications and database management tools

IBM busy fine-tuning Tivoli Management Environment

By Mark Leon

IBM IS LOOKING to third parties to plug holes in the Tivoli Management Environment (TME), which it acquired with the purchase of Tivoli Systems Inc. earlier this year.

Platinum Technology Inc. will add MVS applications management and a data repository to TME, sources close to Platinum said. Platinum will also become a major TME reseller.

The relationship builds on an alliance that predates the IBM and Tivoli merger, when Tivoli agreed to integrate selected Platinum applications with TME last year.

For the past year, Platinum has been busy buying companies and integrating the acquired software, primarily applications and database management tools, within the Platinum Open Enterprise Management System (POEMS).

Platinum billed POEMS as a competitor to TME and Computer Associates International Inc.'s (CA) Unicenter. Analysts said that the new partnership might signal a change in strategy for Platinum.

"There is no doubt that with POEMS, Platinum was pitting itself against Tivoli, but the company may be re-thinking that," said Paul Mason, an analyst with International Data Corp., in Framingham, Mass.

Along with database management, Platinum has acquired MVS application management tools. Although IBM may want to retain control of MVS systems management, it may find more sense in letting others do MVS application management, analysts said.

"Platinum isn't going to do MVS systems management for IBM," said Chip Gleadman, an analyst with Giga Information Group, in Santa Clara, Calif. "But mainframes are becoming big servers in the new era of distributed systems. They need to be managed that way. Companies such as Platinum and BMC [Software Inc.] do an excellent job of managing and monitoring MVS applications in the client/server space."

Sources at IBM were reluctant to admit that MVS management tools might come from third parties, but they said it would make sense to beef up the data repository that ships with TME.

The threat from CA's Unicenter is one reason why it would make sense for IBM-Tivoli to look outside for a data repository.

"Tivoli does not have an object-data repository," Mason said. "Unicenter does. They [IBM-Tivoli] may be interested in POEMS for its ability to pull all kinds of disparate information together under a central, meta-data architecture."

Tivoli needs a good data repository, sources said, and will license TME source code to Platinum.

This will allow Platinum to integrate POEMS with TME. Along with a data repository, IBM and Tivoli would also gain access to Platinum's channel to open-systems management.

Platinum, in turn, would be able to protect its investment in high-end systems management tools.

Attachmate to back Microsoft's Explorer

By Yvonne L. Lee

ATTACHMATE CORP. plans to make Microsoft Corp.'s Internet Explorer its browser of choice, even though it has been bundling Netscape Communications Corp.'s Navigator browser with many of its communications products.

Attachmate's move toward Microsoft came in the same week that Attachmate announced a version of its CrossTalk asynchronous communications product, which includes the Navigator 2.01 browser.

The Bellevue, Wash., company plans to work with Microsoft to enhance Internet Explorer with some of the features found in its Emissary integrated Internet software.

Emissary combines a Web browser with a mail client, a news reader, and an FTP (File Transfer Protocol) client in a single application. It uses ActiveX (formerly OLE custom controls) to enable users to drag and drop information, including HTML links and graphics, between the different modules and change Web pages' appearances on the fly.

The company is working on an agreement with Microsoft to develop this kind of functionality with Internet Explorer, sources said.

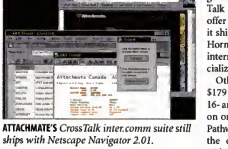
However, it's not just the close relationship between the Seattle-area companies that is drawing them toward Internet Explorer.

Microsoft can attract developers to its Internet browser technology because many have already built support for Microsoft's OLE in to their applications.

"Attachmate had committed to that architecture long before Internet Explorer existed," said Rick Villars, director of network software research at International Data Corp., in Framingham, Mass. Because Attachmate and Wall Data Inc. had used ActiveX in their own products, it will be easier for them to build extensions to Microsoft's Internet Explorer, he said.

The alliance shows that Attachmate believes the market will shift to Microsoft and the use of ActiveX to extend Internet applications, said Harry Fenik, director at Zona Research Inc., in Redwood City, Calif.

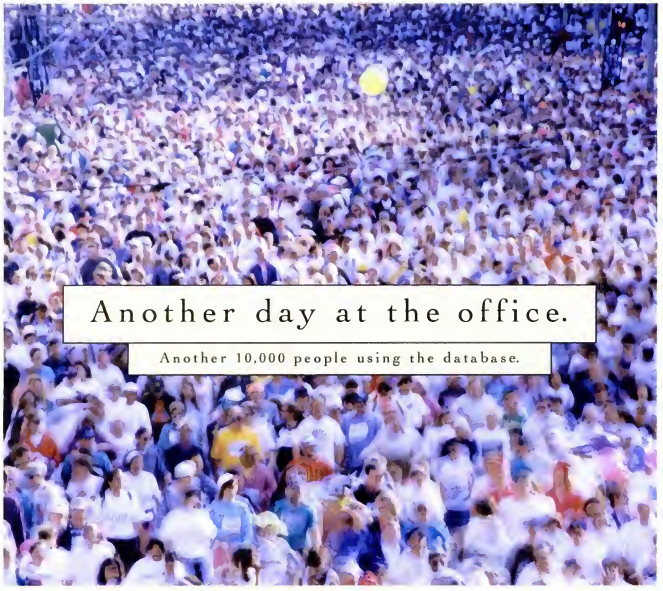
Although Attachmate sees its future aligned with Microsoft, it will continue to offer Navigator with its CrossTalk suite, and it will offer Version 3.0 when it ships, said Tom Horn, vice president of international and specialized products.



ATTACHMATE'S *CrossTalk inter.comm suite still ships with Netscape Navigator 2.01.*

Other changes in the $179 package include 16- and 32-bit versions on one CD-ROM; the Pathway TCP/IP stack the company gained with its purchase of the Wollongong Group Inc., in Palo Alto, Calif.; and the capability of emulating added terminal types.

Internet Explorer support would most likely appear first in Attachmate's Extra Personal Client host-access product, Van Horn said.



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Novell to support Java WorkShop Web tool

By Paul Krill

NOVELL INC. this week will reveal plans to support Sun Microsystems Inc.'s Java WorkShop Web development tool for building NetWare-based Java applets, sources familiar with the announcement said.

Java WorkShop, which is due to ship in August, is a multiplatform development environment written entirely in Sun's Java development language. Java WorkShop could be a big benefit to Novell once Java and Java WorkShop start to mature, said analyst Evan Quinn of International Data Corp., which is based in Framingham, Mass.

"If NetWare developers are building applications for a Web slant, then Java WorkShop is a natural. The problem with Java WorkShop is it's not ready for prime time yet," Quinn said. The Java language lacks the rich class libraries and performance of C++, he added.

In March, Novell announced plans to have the Java Virtual Machine and Java class libraries ported to NetWare by the end of 1996. NetWare, with its NetWare Loadable Modules, has traditionally been an awkward platform for developers to work on. Java WorkShop has the potential to ease this burden, Java is the only tool specifically built for Web development, Quinn said.

Novell hopes its support for Java will help to position NetWare and Novell Directory Services (NDS) as networking services platforms for the Internet. NDS will be able to treat Java applets as objects within the directory.

Java WorkShop is slated to cost $295 per license.

Sun's JavaOne show hosts Java gold rush

By Ted Smalley Bowen and Jim Balderston

AS SUN MICROSYSTEMS Inc. delivers an update of its popular Java development language and operating system at this week's JavaOne developers' conference in San Francisco, a flood of third parties from across the Internet spectrum will jostle for a spot in Sun's caffeine-enhanced aura.

Observers said the flurry of activity indicates that Java is arriving as a mainstream development language.

"A lot of companies are betting the farm on Java. People don't seem to have as much apprehension [as before] about things like the language's security," said Jim McGlaughlin, a Giga Information Group analyst, in Cambridge, Mass.

IBM this week will demonstrate OpenDoc and System Object Model integration with Java, and its VisualAge for Java, which will link Java clients to IBM's CICS distributed transaction processing applications, according to Skip McGaughy, VisualAge marketing manager. The product, which will include partitioning tools, is expected to ship by the end of 1996 or early 1997, he noted.

IBM is also working on Java integration within its MQSeries middleware, McGaughy said.

Hewlett-Packard Co. will kick off the beta program of its Depot/J information management middleware and connectivity tools that will allow Java clients to access business objects composed of data from multiple, heterogeneous back-end sources, according to Cyndi Nickle, product manager in the HP Enterprise Objects Program.

Depot/J will ship later this summer on HP-UX and Sun Solaris and will be available on Windows NT in the fourth quarter.

A similar middleware product that works with Microsoft Corp.'s ActiveX components is also on tap, but no release dates have been set.

NetManage Inc. will announce that it will license Java for use in the company's NetManage JetMail and NetManage Forum newsreader to allow users to embed Java applets in e-mail messages. NetManage will use Borland International Inc.'s App Accelerator just-in-time compiler to improve performance of Java applets.

Northern Telecom Inc. will license Sun's picoJava processors — which are Java-optimized chips for non-PC devices — for use in its PowerTouch telephones. The new phones, which will ship next year for about $300, will have small screens to download information from the Internet.

RogueWave Software Inc. will introduce JDBTools 1.0, a Java language database tool that gives developers a call-level interface for accessing Sybase and Oracle relational databases. The company will also unveil JTools 1.0, a collection of general-purpose Java language classes, and JFactory 1.1, an update of Rogue Wave's visual GUI builder for Java.

Sun's JavaSoft subsidiary will roll out Java Developers Kit Version 1.1 and licensees for its Java OS, called Kona, as well as unveiling new Java APIs and partnerships, according to company officials.

Vendors to launch Java compilers and tools

By Ted Smalley Bowen and Jim Balderston

THIS WEEK AT THE JavaOne conference two companies will unveil Java development environments that they hope will leverage existing Java, ActiveX, and other pre-written libraries to accelerate the development of component-based Internet applications.

Visix Software Inc. will launch its first Java offerings, drawing on its corporate development toolset and class libraries, known as Galaxy.

Visix has developed a Java just-in-time compiler, which it says is as much as 20 times faster than Sun Microsystems Inc.'s just-in-time compiler, and will deliver plug-ins for Netscape Communications Corp.'s Navigator and Microsoft Corp.'s Internet Explorer browsers.

The compiler is part of the Visix Java integrated development environment, code-named Eleven. Visix is also releasing an Internet Application Platform (IAP), similar to JavaSoft's Java Virtual Machine, for the deployment of Java applications across corporate intranets.

Eleven will be priced at about $3,000. Pricing for the Visix IAP has not been set. Both are due in the fourth quarter.

Asymetrix Corp. will also unveil its new Java virtual machine that will increase Java application developers' productivity threefold to fivefold, according to company officials. Using the company's SuperCede Java compiler, developers will be able to compile code at 10 to 50 times the speed now available in other Java compilers.

"You will be able to fix applications while they are running," said Steve Martino, vice president for marketing for the Bellevue, Wash.-based Asymetrix.

"This is all part of the edit, compile, and debug loop that developers have to go through," said Ira Machefsky of Santa Clara, Calif.-based Giga Information Group. "You have to wait for the entire program to recompile. This way you can go through the loop faster."

Future SuperCede products will compile not only Sun's Java but also Microsoft's ActiveX components.

SuperCede Pro, which supports Java and ActiveX, will ship by March 1997; a beta version will ship in October. SuperCede for Java, priced at $500, will ship in October; a beta version will ship in July.

IBM repackages AS/400 for departmental workgroups

By Ed Scannell

LOOKING TO BROADEN its market share, IBM this week will unveil an aggressively priced low-end AS/400 server designed for departments within corporate accounts and also for smaller businesses looking for workgroup solutions.

Essentially a repackaged version of an existing system, the AS/400 Advanced Portable Model 3 will carry an entry-level price of $7,995 and will be positioned as an alternative for IBM users considering client/server solutions involving Microsoft Corp.'s Windows NT and Windows 95. IBM is including as part of the basic package a database tool called Win400 that allows Clipper, a popular Windows database application development program, to seamlessly access information residing in DB2 on the AS/400 from a Windows-based desktop.

THE ADVANCED PORTABLE MODEL 3 *comes with a query and client access package.*

"We think this offers a client/server solution where customers can integrate the AS/400 and PC clients and avoid some of the memory and storage costs associated with going to NT and [Windows] 95," said Steve Early, manager of the System 36 and small business market for IBM's AS/400 division.

The entry-level configuration of the system is centered around the A10 chip, which is a variant of IBM's PowerPC 620 RISC processor. Also bundled with the entry-level system are 16MB of RAM, a 2GB hard drive, a 3450 tape drive, WinA00, adapters for Token Ring add-in cards, and BasePak, which includes the OS/400 operating system and Query & Client Access package.

The system is capable of supporting as many as 16 users on one LAN. It supports two communications lines, one for the system console and the other for the LAN itself, a company representative said.

The new model does not include IBM's Integrated PC Server, a 486-based add-in board that allows the AS/400 to run products such as NetWare or Lotus Notes.

As part of the roll out, IBM is actively seeking to increase the number of its resellers that specialize in the lower end PC-based markets.

"We have grown our number of resellers from 750 to 2,000 over the last 18 months, but we are looking to add more that will exclusively sell at the low end," Early said.

AS/400 officials admit they had taken their eye off the ball in the low-end market and were concentrating on selling to its installed based users at the higher end.

"We found it easier to sell to the installed base where we had established relationships. But if we are to continue to grow the overall business, we'll have to focus on new placements," Early said.

> **International Data Corp. estimates that roughly 250,000 units of Java-related tools will ship in 1996.**

For the record

The May 13 article "Digital prints in major league with LN line additions" (page 46) incorrectly stated that Digital Equipment Corp.'s LN17 printer uses a Fujitsu engine. The LN17's engine brand is Fuji/Xerox.

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Internet commerce

Logistix launches complete Internet commerce service

By Jim Balderston

LOGISTIX CORP. is unveiling an end-to-end Internet commerce service that will allow companies to sell products, services, and information over the Internet.

Unlike many of the Internet-commerce solutions being pitched to prospective customers, Logistix's product is offering little in the way of flashy new technology.

"We don't have any new or proprietary technology," said Logistix CEO Steve Weinstein. "We just got to this place first."

Logistix will offer complete order processing, cash management, and credit card and order verification. The company will also integrate both physical and electronic order fulfillment and database management.

Logistix will provide a customer with a link to its server, which handles all of the transactions for the customer. The company will also provide an HTML-based database that allows customers to display their inventory on the World Wide Web.

The Logistix commerce package will be fully automated. The Fremont, Calif.-based company is targeting OEMs and software and hardware dealers.

Diamond Multimedia Systems Inc., in San Jose, Calif., is setting up a commerce package with Logistix. The company distributes CD-ROM titles.

"The Internet is a great medium for reaching customers who don't have access to traditional distribution channels," said Ken Wirt, vice president of marketing for Diamond Multimedia. "The ability to sell on-line is here today and will become an important part of our distribution strategy."

One of the keys to successful online commerce is the ability to fulfill orders once they are taken.

"We have a strong integration with the local shipping companies so that once the product is ordered, we can get it out to the customer," Weinstein said.

DIAMOND MULTIMEDIA SYSTEMS *is installing Logistix's Internet commerce service.*

Logistix is a 22-year-old software manufacturer with extensive experience in just-in-time production methods, which demand tight, end-to-end control over the entire production process.

"This was a natural step for us," Weinstein said.

Vendors form networking alliance

■ IBM, 3Com, Bay Networks to push LAN specifications

By Stephen Lawson

IBM, 3COM CORP., AND Bay Networks Inc. last week formed an alliance to foster the interoperability of LAN products for end-to-end support of next-generation LAN technologies.

The Network Interoperability Alliance (NIA) will establish an independent group to test the interoperability of new and existing products and will propose specifications to existing standards bodies. Executives of the alliance companies emphasized that the group intends to accelerate current standards efforts rather than propose new ones.

Cisco Systems Inc. and Cabletron Corp. were not part of the initial announcement. The group said it would welcome any companies that shared its philosophy but had decided to act swiftly rather than line up support from all the major vendors.

The three companies said they share a three-level vision of enterprise networks, roughly divided into "empowered" desktops and servers, edge devices or wiring closets, and the data center or network core.

Cisco does not share this view, said 3Com Chairman Eric Benhamou. He said the company's CiscoFusion approach is a two-layer approach that does not include empowered desktops. Cisco is welcome to join, Benhamou said, if it is prepared to modify CiscoFusion.

"This alliance is aimed at not including Cisco," said Michael Howard, president of Infonetics Research Inc., in San Jose, Calif. The company's absence is likely to limit the group's impact, he said.

Without Cisco, the NIA may not make much of an impact, Howard said.

A Cisco representative said the formation of the alliance was purely a competitive move. Cisco will continue to work toward interoperability in the existing standards bodies, the representative said.

According to John Hart, 3Com's vice president and chief technology officer, the NIA's strategy calls for making desktops and servers network-aware, with the eventual goal of creating self-configuring networks. Across the network, the group will draw on aspects of each company's management architecture for more integrated networks.

The alliance plans to accelerate the IEEE 802.1p and IEEE 802.1q standards, the Integrated Private Network to Network Interface (IPNNI), and zero-hop routing. (See chart.)

Hart said the alliance hopes to work next with network operating system vendors to build more network features into desktops.

One user who manages products from all three companies, as well as Cisco routers, welcomed the announcement.

"It's about time," said Jay Nasca, director of desktops and LANs at Thomson Publishing, a legal publishing company in Rochester, N.Y. "Anything they can do to standardize hardware and management is going to help me 100 percent."

Nasca said he hopes the move isn't intended to isolate Cisco. But if Cisco doesn't go along, he said, the router giant will have its work cut out for it.

"I might still go with Cisco routers, but it would make my job more difficult," Nasca said.

Cabletron said last week that it supports the alliance's call for interoperability and will seek to join the group.

Alliance to push future specifications

The alliance kicked off last week by IBM, 3Com Corp., and Bay Networks Inc. will focus on three technologies

- **IEEE 802.1p, 802.1q:** virtual LAN specifications for management features, quality of service, and other capabilities.
- **IPNNI:** a common routing protocol for both Asynchronous Transfer Mode and existing network protocols, including IP.
- **Zero-hop routing:** a way to let desktops and servers in different parts of a network communicate as if they were in the same area.

Borland links dBase to Web

By Mark Leon

BORLAND INTERNATIONAL INC. is joining the race to bring database access to the Internet with enhancements to its development tools.

The company's Visual dBase Professional with Intranet Tools allows Xbase developers to connect dBase and other Xbase databases to Web servers. New features include Visual dBase class libraries and Web-Experts that simplify development.

Although this release of Visual dBase Professional does not allow users to create their own database queries, by filling in a form, for example, Borland is developing a version of dBase, code-named Charlotte, that will give users the ability to generate custom queries from a browser. The company did not give expected delivery dates.

The class libraries, called WebTools, are licensed from DeltaPoint Inc. and are dBase extensions that allow the language to take advantage of HTML and Common Gateway Interface.

"The extensions allow you to publish your databases on a Web server and provide some interactive access," said Terry Crow, software development manager for a major insurance company. "It's very easy to do."

Users will be able to access published databases with a Web browser. In the simplest deployment, users can access specific tables; alternatively, the developer can give users some prepackaged queries.

The WebExpert utilities are wizards that walk developers through the process of building Web-enabled Xbase applications.

"The WebExperts are for developing simple applications," Crow said. "If you want to do something complicated, you need to use the object class libraries [WebTools]."

Although the software is designed to work with most Web servers, Crow said it seemed to be optimized for WebSite, a Web server from O'Reilly & Associates Inc.

Visual dBase Professional with Intranet Tools is currently available on Windows 3.1 and Windows 95 for $495.

IBM to push forward SMP server for OS/2

By Paul Krill

IBM IN JUNE will begin beta testing on OS/2 Warp SMP Server, which will greatly enhance performance of Big Blue's LAN operating system.

Symmetric multiprocessing (SMP) support is considered critical to enabling OS/2 Warp Server to compete against rivals already deploying SMP, particularly Microsoft Corp.'s Windows NT and Novell Inc.'s NetWare.

Applications support for OS/2 also will be boosted by the technology, said an official at one OS/2 Warp Server ISV.

"It's integral to getting applications in the space where they can run on multiple processors," said Kristin Burkland, director of business development at Btrieve Technologies Inc., in Austin, Texas.

One analyst who saw an early release running Lotus Development Corp.'s Notes on a six-processor system described its performance as "super fast."

"The folks I was with who actually ran Notes pretty heavily were stunned," said Bob Sakakeeny, an analyst with Aberdeen Group Inc., a consultancy in Boston.

One user running OS/2 Warp at 113 sites said an SMP version may be needed in the future at his company, although it has no requirement for one at present. An SMP server could complement an AS/400 data server by supporting other business applications, said Terry Duvall, director of information systems at Furr's Bishop's Inc., a food service company in Lubbock, Texas.

The SMP version of OS/2 Warp Server will be priced the same as the current uniprocessor implementation, which costs $629 for an entry-level server and $1,299 for an advanced configuration supporting as many as 1,000 users per server.

OS/2 Warp Server currently supports only Intel processors. An IBM PowerPC version may be developed if there is enough user interest, IBM officials said.

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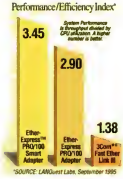

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System prices

Hardware vendors cut prices, ready upgrades

By Deborah DeVoe

SYSTEM PRICES continue to fall as the cost of components keeps dropping and major hardware vendors such as Hewlett-Packard Co., Gateway 2000 Inc., and AST Research Inc. gear up for the release of upgraded products.

Compaq Computer Corp. announced last week price cuts of as much as 24 percent across its ProLinea and Deskpro commercial desktop lines.

For example, a ProLinea E5/100 Model 630 with a 100-MHz processor is now available for $1,299.

HP will match Compaq's lower prices with reductions to be made on its commercial Vectra desktops June 1, HP officials said.

HP also reduced NetServer LS and LC prices last week by as much as 27 percent. The price cuts include 166-, 133-, and 100-MHz Pentium systems.

A NetServer 5/166 LS Model 1 now costs $9,800.

HP also plans to announce June 3 Vectra models based on Intel Corp.'s 440FX (previously named Natoma) Pentium Pro chip set. The uniprocessor systems will come with either the 180- or 200-MHz Pentium Pro with 256KB of on-chip Level 2 cache, HP said.

Pricing is expected to start at less than $3,000, according to the company.

Gateway is also gearing up to deliver a mainstream 200-MHz Pentium Pro desktop using Intel's 440FX chip set by mid-June, officials said. Specifications have not been made final.

Gateway will also launch a 200-MHz Pentium desktop, officials said. Intel is expected to announce the chip June 10, sources said.

The Gateway P5 200 XL will be based on Intel's new 430VX chip set. The 200-MHz system will come fully loaded for less than $4,000, Gateway officials said.

The tower PC will include 16MB of RAM; a 2.5GB hard drive; a CD-Recordable drive that writes at quad speed and reads at dual speed; an eight-speed CD-ROM drive; a 28.8Kbps fax/modem; and 16-bit sound.

Windows 95 will come with the system, and an upgrade to Windows NT 3.5.1 will be available for $49, Gateway said. Users who opt for NT 3.5.1 will also receive a free upgrade to NT 4.0 when it becomes available, the company said.

Not to be left in its competitors' dust, AST will ship early in June 180- and 200-MHz Pentium Pro Bravo minitowers using the 440FX chip set. Pricing will range between $2,695 and $3,400, officials said.

The company also plans to deliver 200-MHz Pentium desktops by mid-June, AST said.

COREL ADDS WEB APPLETS TO WORDPERFECT

By Chris Jones

COREL CORP. this week will launch an Internet-enabled 32-bit version of its desktop applications suite, including World Wide Web-ready productivity applications and accessories.

The WordPerfect suite, which includes 32-bit versions of WordPerfect, Quattro Pro, Presentations, and CorelFlow, will gain the Envoy electronic publishing tool, Netscape Communications Corp.'s Navigator 2.0 Web browser, and Starfish Software Inc.'s Sidekick personal information manager and Dashboard task launcher.

Corel will also ship late next month Java publishing capabilities from within its Office Professional suite. Corel plans a Java-based applications suite in early 1997.

Analysts said Corel has to offer users a compelling reason to switch from Microsoft Corp.'s market-leading Microsoft Office.

"The things that WordPerfect has concentrated on are right," said Chris Le Tocq, an analyst at Dataquest Inc., in San Jose, Calif. "But users want a road map for what products will do over time, and with Microsoft Office they have a platform to build around."

Internet capabilities in the WordPerfect suite center around Web publishing. When users click on an Internet publishing tool from an application, a new interface appears with toolbars and menus specific to HTML conversion.

In Quattro Pro, links can be set from cells to URLs, from which data can be imported and updated dynamically.

The upcoming Java suite will be an alternative for a new breed of users. The suite will be composed of applets that can operate within a browser and will be focused on more specific tasks than full-blown applications, said Eid Eid, Corel's director of graphics software

Aiming for 20 percent to 25 percent market share with WordPerfect, Corel will soon announce OEM agreements with a major PC manufacturer. Microsoft currently owns close to 90 percent of the suite market, but analysts said there may be room to cut into that share.

"Microsoft is suffering from the market leader syndrome: They don't pay attention to how people are using the product, and the competition is reacting to user needs better than they are," Le Tocq said.

Dell's notebook line targets midrange multimedia users

■ LM series includes 128-bit graphics

By Carolyn A. April

TAKING AIM AT mobile users with multimedia needs, Dell Computer Corp. this week will unveil a new notebook line with an integrated quad-speed CD-ROM drive, MPEG-1 software support, and a PCI-based 128-bit graphics accelerator.

The Latitude LM series consists of two models and is being positioned as Dell's midrange notebook offering. It skips features such as an internal modem, built-in networking capability, PC Card bus tech-

THE SALIENT FEATURE *of the LM notebook series is its option bay.*

nology, and support for Zoom Video, which would have made it a desktop replacement, according to company officials.

Industry analysts agreed.

"It's not a showcase piece, but it is Dell bringing multimedia to the mainstream," said Richard Zwetchkenbaum, an analyst with International Data Corp., in Framingham, Mass. "It delivers a lot of the features and functionality of the more premium systems, like the option bay for the CD and floppy, the 12.1-inch screen, and 128-bit graphics, but at better price points."

The LM is the first Dell notebook to incorporate an option bay into the side of the 2-inch-thick machine, allowing users to exchange a quad-speed CD-ROM drive, a floppy drive, or a second lithium ion battery.

For users who need a to run a CD-ROM and floppy disk at the same time, Dell includes a cable so the floppy drive can be plugged in externally.

Features on the entry-level LM P-100 model include a 100-MHz Pentium processor; 8MB of RAM, expandable to 40MB; an 11.3-inch Super VGA dual-scan screen with a 128-bit graphics accelerator; a 540MB hard drive, expandable to 1.3GB; the PCI local bus architecture; a removable quad-speed CD-ROM drive; two Type II or one Type III PC Card slots; infrared capability; and 16-bit SoundBlaster Procompatible audio. The upgraded P-133 model features a 133-MHz Pentium processor and a 12.1-inch active matrix LCD. Prices for the two models are $2,799 and $3,499, respectively.

The notebooks come loaded with Windows 95. They weigh 7 pounds and are 1.94 inches thick in an 11.75-inch-by-8.9-inch footprint.

Zenith emerges from buyout with revamped Pentiums

By Deborah DeVoe

ZENITH Data Systems (ZDS), following its recent buyout by Packard Bell Inc., announced last week a new Z-Station GT 500 Pentium-based desktop family, which replaces ZDS' current Z-Station VP and GT lines.

ZDS' upgraded Z-Station GT 500 series is based on Pentium processors and Intel Corp.'s latest 430HX PCI chip set. The systems will enable ZDS to offer both high performance and value in a single line, ZDS officials said.

Shipping now, the systems support 100-, 133-, and 166-MHz Pentiums. The PCs come standard with 16MB of Extended Data Out RAM, 256KB of synchronous pipeline burst cache, and ATI Mach 64 VT 64-bit graphics.

Entry-level estimated street pricing starts at $1,554 for a 100-MHz model with a 1.2GB hard drive. At the high end, ZDS will offer a 166-MHz multimedia minitower for $2,365, including a 2.1GB hard drive and an eight-speed CD-ROM drive, the company said.

The acquisition, which took place in February, will bring other changes to ZDS, including a restructuring of its operational base. The company plans to close its Buffalo Grove, Ill., headquarters and St. Joseph, Mich., manufacturing facility, said Cliff Jenks, chief operating officer and executive vice president at ZDS. Many operations will move to Packard Bell facilities in Sacramento, Calif., by the end of June, he added.

"Packard Bell and ZDS are in the process of seeing where we have redundancy, [gaining] reduction in

INTEL'S 430HX CHIP SET *will boost the performance of ZDS' Z-Stations.*

costs through consolidation. All we're doing is relocating. We fully expect to continue with ZDS desktops, notebooks, and servers and are looking to expand our lines," Jenks said. "We're maintaining focus on Zenith as a brand, with the Zenith brand name underneath the Packard Bell umbrella."

Jenks did acknowledge, however, that a "substantial number" of the 1,300 employees affected by the consolidation will be let go.

ZDS announced earlier this month that, along with Hughes Data Systems Inc., it was awarded a U.S. Air Force Desktop V contract estimated at about $1 billion.

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Cabletron buy brings remote access home

By Stephen Lawson

CABLETRON SYSTEMS INC. expanded its presence in remote access last week by agreeing to acquire Network Express Inc., a provider of ISDN switched-access products.

Cabletron plans to integrate the Ann Arbor, Mich., company's remote-access software into its central-office switches, putting its marketing and sales muscle behind Network Express' central-office and remote hardware.

"Network Express has a really good line of products," said Michael Howard, president of Infonetics Research Inc., a consultancy in San Jose, Calif. "Cabletron got a good buy."

Howard said the acquisition fills a hole in Cabletron's product line when compared with the offerings of Cisco Systems Inc., Bay Networks Inc., and 3Com Corp.

Cabletron already has a set of remote-office products, but it will now be able to expand into smaller offices and home offices.

Wade Appelman, Cabletron's director of advanced product engineering, said Network Express' offerings will also help fill out the company's intranet strategy.

The company will integrate Network Express remote-office software features into its MMAC-Plus hubs, selling the Network Express central- and remote-office hardware as stand-alone devices. The products do not overlap with Cabletron's offerings, Appelman said.

Cabletron will also get a leased-line backup technology that Network Express gained via its acquisition of a British technology manufacturer last November. If the T1 line to a central-office hub fails, the backup technology will let the hub switch its connection over to an ISDN connection.

The deal also provides Cabletron with a stronger international position. Network Express said that in addition to getting access to Cabletron's direct sales force in the United States, Cabletron will be able to boost its presence in Japan, where last year Network Express held 14 percent of the ISDN market.

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BANYAN BEYONDMAIL GETS INTERNET CLIENT

By Jessica Davis

BANYAN SYSTEMS INC.'s Internet division, Coordinate.com, is now shipping BeyondMail Personal Internet Edition e-mail clients for Windows.

Many of the features in the Personal Edition will also be available in the beta version of BeyondMail Professional Edition for SMTP, Version 3.0, to be released in June. The Personal Edition includes the standard MailMinders, which delivers the advanced rules-based filtering for which Banyan is known.

The new version also offers WebMinders, which automatically retrieves new information from Web sites selected by the user.

Users can also program WebMinders to retrieve the information during off hours. The information is then downloaded to the user's inbox, letting him or her view it while disconnected from the network or the Internet — for example, when traveling via airplane.

The Personal Edition also features hotlinks to Web sites when a user is connected. If a URL is typed into an e-mail message, the recipient can click on the URL to automatically launch an installed Web browser and travel to a specific site.

The Personal Edition is available now, priced at $29 per user. An evaluation copy of the software is available at the Internet division's Web site: http://www.coordinate.com.

The Professional Edition, aka BeyondMail 96, will include support for OLE 2.0. By leveraging OLE, HTML documents can be embedded directly in an e-mail message. The embedded object looks like a Web browser window within the e-mail message. Users can send a copy of the actual Web site to a specific recipient rather than just a URL hotlink.

Banyan's Coordinate.com division, based in Burlington, Mass., also announced an alliance with Software.Com Inc. in which the two companies will serve as each other's OEMs.

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Falcon

Continued from page 1

way that will integrate Falcon with MQSeries, which currently runs on 18 platforms. However, Microsoft is primarily targeting interoperability with mainframe platforms in the initial release of Falcon, sources said.

Both Falcon and Level 8's gateway product are set to go into beta testing this summer, with shipments expected by year's end, sources said.

> **Messaging and queuing systems act as a cross-platform middleware backbone.**

Like existing messaging products, such as MQSeries or Covia Technologies Inc.'s Pipes, Falcon will have a single set of APIs for deploying applications across multiprotocol networks and multiple operating systems, according to a white paper that Microsoft temporarily posted on its Web site earlier in the year.

The white paper also said that Microsoft's messaging product will provide the basic communications infrastructure for distributed systems.

Whereas Microsoft's Distributed Component Object Model, based on a remote procedure call architecture, requires a live network connection to link application components, Falcon's store-and-forward architecture can operate even when network connections are lost or become unreliable.

"The significance of a reliable store-and-forward system is that you don't have to operate in real time, and you don't have to be beholden [to the network] and wait for a message to go through," said Sally Cusack, an analyst at the Standish Group International Inc., in Dennis, Mass.

"IBM has had tremendous success in industries where there are disparate systems, and users don't want to lose an entire transaction if one system is not up," Cusack said.

Some analysts speculated that Microsoft may use its Messaging API, used in its Exchange and Microsoft Mail products, as Falcon's API.

Meanwhile, IBM is not standing still. The company will port MQ-Series to Windows NT later this year and is positioning MQSeries as a backbone for Lotus Notes applications. (See "Notes to get direct link to transactions," May 20, page 1.)

IBM has also signed a deal with Iona Technologies Ltd. to tie Iona's Orbix CORBA object middleware to MQSeries.

HP adds PA-8000 workstations

■ 64-bit processor-based system has SMP design

By Tom Quinlan

A NEW GENERATION of Precision Architecture RISC processors is expected to put Hewlett-Packard Co. at the top of the performance heap for workstations next week when the company unveils its first systems that use the 180-MHz PA-8000 processor.

The first family of systems using the high-powered 64-bit processor will have a symmetric multiprocessing (SMP) design primarily configured as a high-speed graphics workstation that can scale from one to four processors, sources said.

With a starting price of less than $30,000, the system will feature a 180-MHz PA-8000 processor, a minimum of 32MB of error-correcting code RAM, a 2.1GB hard drive, and a CD-ROM drive, sources said.

The system will also feature a new graphics subsystem designed for high-end two- and three-dimensional graphics modeling that "will blow the socks off" competing models, one source noted.

The systems are the first offerings from HP's Workstation Division since the RISC group's products were split into technical and commercial segments last month.

Fully configured systems that would support terabytes of data storage, more than 1GB of RAM, and multiple processors would cost as much as $100,000, sources said.

HP is also expected to announce a time line for bringing out board-based upgrades for existing C- and J-class desktop workstations later this summer.

Upgrades for HP's larger Unix-based multiprocessor servers — including K-class and T-class systems that can be clustered together — will be introduced throughout the rest of the year, sources said.

HP has been seeding a small number of systems to selected third-party developers, particularly ISVs developing graphics applications, in order to build up a library of applications ready to take advantage of the system's multiprocessing capabilities and the Unix 10.x OS, sources said.

The company will also pay the now-standard homage to the Internet/intranet market by including software designed to speed up access to the World Wide Web when using these systems, sources said.

But faster performance in a number of areas will be the hallmark of the processor, sources said.

According to benchmarks released by HP last month, the 180-MHz version of the processor offers a SPECint95 performance of 11.8 and a SPECfp95 rating of 20.2. Originally, the processor was expected to have a SPECint95 performance of less than 10 and a SPECfp95 rating of about 15.

The processor's latest performance ratings makes it more than twice as fast as the 167-MHz version of the UltraSparc processor, which has SPECint95 and SPECfp95 performance ratings of 5.6 and 9.1, respectively, and significantly faster than the expected performance of the still unreleased 250- and 300-MHz versions of the UltraSparc II.

HP is also expected to extend the PA-8000 line to include faster versions of the processor, sources said. The chip's design is capable of supporting clock speeds as fast as 300-MHz.

Ice Tea

Continued from page 1

er products group. "We're building class libraries and tools so we can experiment. Ice Tea is one of those experiments."

"We built a turnkey set of libraries that creates a connection, does the communications, and tears [the connection] down at the right time. It's like a black box for sockets programming," Weber said.

Unlike Sun's CORBA-specific Java Objects Everywhere (JOE) middleware, Ice Tea will provide messaging over TCP/IP networks between thin clients running Java objects and back-end systems, officials said.

Ice Tea, which is currently at the prototype stage, will move Java closer to fulfilling the requirements of corporate sites and ISVs for deploying mission-critical and secure applications, according to analysts.

"At the 100,000-foot level, it's all got to do with getting Java as matured as possible as quickly as possible," said Evan Quinn, research manager for application development tools at International Data Corp., a market research company in Framingham, Mass.

In addition to JOE, Java must meet many connectivity requirements to become mainstream, observers said.

Analysts expect Sun and other vendors to provide many middleware products to ensure that Java applications can tap in to the data residing in corporate America's installed base of applications.

"To get beyond client-side Java browsers, you need the operating system vendors to embed the Virtual Machine in their operating systems, and you need to get connectivity out to installed systems, tools, databases, and transaction-processing monitors," Quinn said.

Third-party developers lauded Sun's efforts to bolster the connectivity and security features of Java.

"Ice Tea, along with some of the things they announced with their commerce library [for doing online commerce with Java], will make it easier to access secure transport protocols," said a third-party Java developer.

"[To streamline network traffic], there also need to be packaging methodologies for taking [HTML document] forms and flattening them out to HTTP for taking them across networks," the vendor added.

SunSoft officials declined to provide packaging or delivery dates for the Ice Tea technology.

Additional reporting by Paul Krill.

Pro servers

Continued from page 1

Officials acknowledged plans to deliver Pentium Pro-based Net-Servers by mid-July using Intel Corp.'s motherboard and chassis designs but declined to comment on specifications. (See "Intel plans four-chip board," May 13, page 1.)

HP will offer the 166-MHz version of the Pentium Pro with 512KB of on-chip Level 2 cache, sources said. The company also plans to offer a 200-MHz version but has not finalized plans for availability of that chip with either 256KB or 512KB of cache, they added.

Intel officials said the 200-MHz chip with 256KB of cache is now shipping in volume. The 200-MHz version with 512KB of cache will ship in volume in July, they added.

The LX Pro will challenge the Unix world by providing 12 hot-swappable drive bays and a maximum of 512MB of error-correcting code (ECC) memory, sources said. The LH Pro will sport six drive bays, and both models will come standard with 32MB of ECC RAM and a quad-speed CD-ROM drive, the sources added.

The systems will also support Extended Data Out memory with parity checking to meet lower end budgets. Both 2.1GB and 4.2GB hard drives will be offered, the sources said.

Entry-level pricing for the 166-MHz systems is expected to be less than $10,000, according to sources.

"HP's big advantage will be its brand and healthy services organizations to wrap around it. HP also has the ability to integrate NT and Unix and provide a better, lower cost overall," said Rob Enderle, senior analyst at Giga Information Group, in Santa Clara, Calif.

HP will also announce plans to make its MC/ServiceGuard failover technology available for the servers and to support Microsoft Corp.'s WolfPack clustering APIs when they become available.

HP's fail-over technology will first support Fast Ethernet connections. Support for HP's fiber-optic interconnect technology will follow, sources said.

Though Compaq's products won't match HP's storage and memory offerings, it will steal some thunder in terms of enterprise systems management, sources said.

Compaq will announce partnerships with Tivoli Systems Inc., Seagate Technology Inc., BMC Software Inc., and Boole & Babbage Inc., sources said. The company is also working to develop a partnership with Computer Associates International Inc., they added.

"Compaq's main focus is going to be more complete offerings for the enterprise user, delivering not only technology but the ability to integrate and manage systems," said Jerri Sheridan, principal analyst at Dataquest Inc., in San Jose, Calif.

Compaq will deliver two ProLiant 5000 models. ProLiants based on the 166-MHz Pentium Pro with 512KB of cache are due to ship in June or early July; servers based on the 200-MHz chip with 256KB of cache will be delivered in July, sources said.

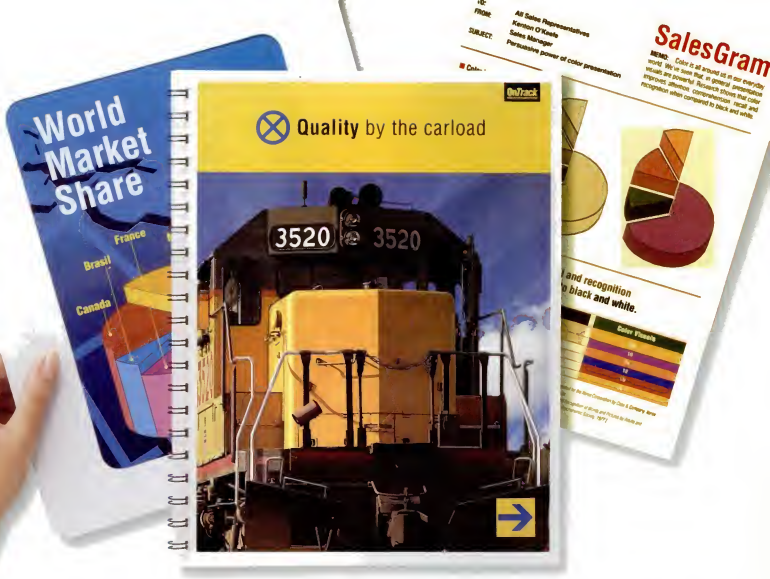
The systems will come standard with 64MB of ECC RAM, expandable to 128MB, the sources added.

Initial systems will use SIMM technology; later models will incorporate dual in-line memory modules. Both 2GB and 4GB drives will be available, according to sources.

IBM, for its part, announced a 166-MHz Pentium Pro server in March at CeBit. (See "IBM, HP introduce quad-processor servers," March 18, page 12.) The server, which supports four Pentium Pros by using two processor cards, will ship beginning this week, IBM said.

IBM will deliver a standard quad-processor model based on the Intel Pocahontas chassis in the third quarter, sources said.

Ed Scannell contributed to this article.



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Multiprocessing

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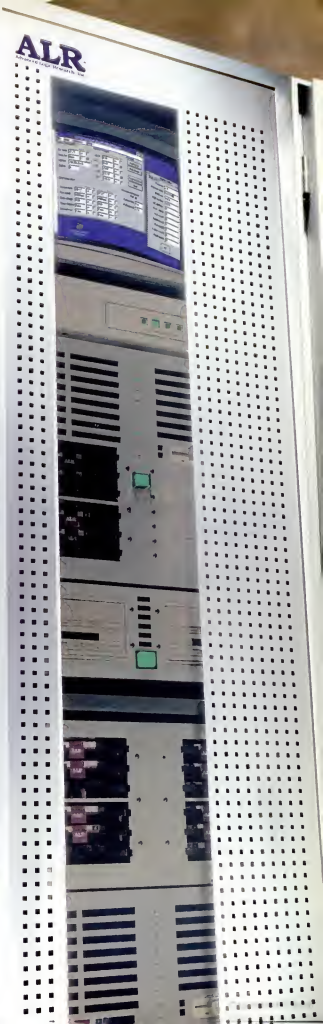

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PIPELINE

ANNOUNCED

Hewlett-Packard Co. has announced financial results for the second quarter of the 1996 fiscal year as well as approval for a 2-for-1 split of the company's common stock, to take place June 19. Net revenues for the second quarter came in at $9.9 billion, a 33 percent increase from revenues during the same quarter in 1995. Net earnings for the quarter rose to $723 million, a 25 percent increase from earnings in the same quarter last year.

GIGATRON SOFTWARE CORP. announced this week Note It, a program that allows users to mark up, revise, and highlight files without changing the original text. The 32-bit program was developed for Windows 95 and Windows NT 3.51 and later, and it is compatible with most word processing, Web page, graphics, fax, and spreadsheet files. Among the program's annotation tools are a highlighter pen; a tool that simulates a felt-tipped marker; a stamp, to duplicate most commonly used office stamps; and voice notes for voice annotations. The package will cost $99. (714) 261-1777.

REGAL ELECTRONICS INC. will announce at spring Comdex in Chicago its five-disk, half-height CD-ROM jukebox, which fits in the space of a floppy drive. The quad-speed CDC-4X will be available in a $399 internal version and a $495 external model. Both will support DOS and Windows for selecting CDs; the external will also support the Macintosh. (408) 988-2288.

SHIPPING

INFOCUS SYSTEMS INC. shipped last week the LitePro 620, a Super VGA projector that features Digital Light Processing technology from Texas Instruments Inc. The modular 620 features a built-in JBL audio system and 800-by-600 resolution for a price of $10,999, including graphics and video modules. (800) 294-6400; http://www.infs.com.

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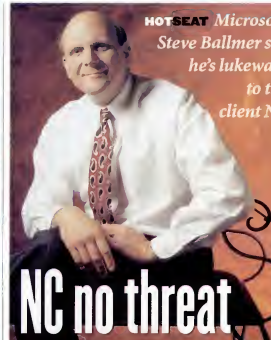

HOTSEAT *Microsoft's Steve Ballmer says he's lukewarm to thin client NCs*

NC no threat

WITH MICROSOFT CORP. pushing a raft of new technologies, the strategic goals of the Redmond, Wash., giant are playing an increasingly important role in IS decisions. Steve Ballmer, Microsoft's executive vice president of sales, recently outlined some of the company's long-term plans regarding Windows, the Internet, and thin client Network Computers (NCs) to *InfoWorld*'s Corporate Advisory Board during a talk moderated by Michael Vizard, *InfoWorld*'s executive news editor.

Microsoft as a company personifies the fat client. So what is Microsoft going to do to reduce the cost of clients and reduce the size of those clients?

Well, we don't have a goal, per se, of reducing the size of the client. We also don't have a goal to fight thin clients.

I think the whole issue of the network client is really a frustration that people have with two things: manageability and initial price. There may still may be a market for devices that are thinner than PCs. And that's why we're doing some work on wallet-size devices and other thin devices. But I think the bulk of the market will remain PCs.

So are PCs too expensive?

Over time, I think what we have to do is to tell a story that says 'Look, there's going to be a great PC for $800 to $900.' I don't think it's going to be $500 or $600 in the foreseeable future, but it could be $900 or $800.

And that PC is going to have software that will be exciting for the next three or four years. And that will mean an explicit set of development and design decisions from the hardware community.

So why don't we have that today?

The hardware community and the software community have got to pick a design point [for] that $900 machine. You may have to have two development paths — a high-end one and a low-end one. We are working out the issues.

I just got a 20-page memo from Nathan Myrhvold [Microsoft's chief technology officer] commenting about what such a device would mean, and how would we manage Office to support both the lower end and higher end machines.

In general, what kind of impact is the Internet having?

The number of companies that have really thought about [re-engineering] business processes on the Internet is surprisingly low.

When I talk to VARs and other systems integrators, you'd be surprised — probably 30 percent to 40 percent of them don't have Internet e-mail addresses. That's surprising, amazing, mind-blowing.

And with all the attention in the press, we find that one of the top pressures today on IT people is business people who are saying, 'Oh my God, are we going to be left behind? Are we going to get re-engineered out of business here?'

How is Windows 95 doing in corporate sites?

▷ BALLMER *page 31*

Bevy of vendors flocks to support Oracle's NC

By Luc Hatlestad

WHEN ORACLE CORP. finally unveiled last week its much-hyped Network Computer (NC) specification, a host of vendors simultaneously announced products and initiatives in support of NC designs.

Oracle CEO Larry Ellison said the companies hope the NC will garner acceptance across the enterprise as a cheaper, simpler way to perform users' most basic applications — such as sending and retrieving e-mail and browsing the Internet.

Oracle announced, along with the NC Reference Profile, the formation of Network Computer Inc., an Oracle-owned subsidiary that will develop NC system software. The company also offered demonstrations of potential NC devices and applications.

Oracle presented the NC with supporters at its side, such as Apple Computer Inc., Netscape Communications Corp., IBM, and Sun Microsystems Inc.

However, neither Apple nor IBM would commit to providing systems at the entry-level price of $500 for a basic NT system.

Apple President and CEO Gil Amelio positioned his company's Pippin and Newton as future NC devices but promised only to bring in the enhanced systems at less than $1,000.

IBM, which also held a demonstration of its PowerPC-based AS/400 thin client at the event, cited a price of about $1,000 for its initial NC-compliant device. Future products that are designed with the consumer market in mind might reach

▷ ORACLE NC *page 31*

PC, networked data integrated by Softscape's Explorer Plus

By Ed Scannell

SOFTSCAPE INC. HAS delivered an information management package that lets both Windows 95 users and Webmasters maintain individual desktop management systems that access, via a search-and-retrieval metaphor, data contained in both personal files and corporate network files.

Softscape Explorer Plus 1.0 is designed to increase productivity by letting users concentrate on their work rather than spending time to figure out where specific files and directories are located on their PCs or to determine which networks they are running on.

"I think the product can help us effectively manage all the files on our Web site as well as publish information to the [World Wide] Web without having to learn new tools," said Tim Carroll, who is responsible for maintaining the Web site at Metronics Inc., a manufacturer of geometrical digital readout systems in Bedford, N.H.

Others see possibilities for Softscape Explorer when researching on the Web.

"I could use it to track my information and conduct research on the Web and not have to remember where I saved something or what I named it," said James Alexander, a vice president at Chemical Bank, in New York.

The product's document search-and-retrieval system is controlled by its QuickFind feature.

For instance, users can specify full-text natural-language strings to initiate searches or combine text and attribute searches to a single query.

Centered around Verity Inc.'s Topic indexing engine, QuickFind can automatically expand searches using its on-line thesaurus, case matching, and a "sounds-like" feature, which guarantees a more comprehensive search.

The product's QuickView feature also gives users a way to view all documents gathered from a search without having to launch the application that originally created them.

Softscape Explorer is available now through Aug. 1 priced at $99. After Aug. 1, it will be priced at $129.

Softscape, in Acton, Mass., can be reached at (508) 369-2100 or http://www.softscape.com.

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Motorola to port NT applications to PowerPC

By Tom Quinlan

PENTIUM PRO VENDORS are not the only ones gearing up for Windows NT 4.0. Motorola and Groupe Bull are starting a porting center designed to speed up the delivery of NT software for the PowerPC platform.

The porting center, which will be located somewhere in Silicon Valley, is scheduled to open this quarter, executives from both companies said. It will also work closely with similar centers run by IBM.

Although both Motorola and Bull have been focusing on developing and marketing NT-based servers, Motorola executives pointed to the advent of Windows NT 4.0 — and its anticipated success as a desktop platform — as one reason for opening the center now.

"We think Windows NT 4.0, with the Windows 95 GUI, will be a very successful desktop platform for us," said Joe Guglielmi, senior vice president and general manager of the Motorola Computer Group.

"To this point, we've focused on selling an NT server solution, but when NT 4.0 is available, we'll be able to offer corporate customers a complete solution that scales from the Mac-OS and NT on the desktop to NT and AIX on the server level," Guglielmi added. "The fact that those operating systems will all run on the same platform is very attractive to our corporate users."

The porting center will offer ISVs technical support, system loaners, and consultancy services, the companies said. It will offer software developers help in fine-tuning applications ported to the PowerPC with tools such as Microsoft Corp.'s Visual C++.

The target system is the PowerPC Platform, a system design based on the 603 and 604 PowerPC chips that can run the MacOS, NT, AIX, and Sun Solaris interchangeably. Originally OS/2 was also being supported, but IBM stopped development of a PowerPC version of the operating system.

The PowerPC Platform is not expected to ship, even in limited volumes, until the end of this year, with volume shipments taking place in 1997.

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VENDORS PREP LARGER, CHEAPER DRIVES

DISK DRIVE VENDORS are continuing to pump out larger, more cost-effective drives, with announcements this month from Western Digital Corp. and Seagate Technology Inc.

Western Digital will ship next month its 3.1GB enhanced-IDE Caviar drive, with an estimated price of $549. The 3.5-inch, three-platter drive runs at 5,200 rpm and can transfer data as fast as 16.6MBps, officials said.

The company will include its EZ-Drive software with the drive to solve existing system BIOS limitations for drives larger than 2.1GB. The software will also let users partition the drive, as Windows 95 and 3.x don't support single volumes larger than 2.1GB.

The Irvine, Calif.-based company is also planning to unveil a 1GB drive for notebooks in August, said John Burger, vice president of marketing for Western Digital's storage products. The drive will be based on a new 10mm-by-3-inch form factor that will support more data, consequently reducing costs between 15 percent and 30 percent, Burger said.

Seagate, in Scotts Valley, Calif., is also gearing up to deliver speedier and less costly desktop drives to OEMs in August. The company announced last week 3.5-inch-by-19mm, 2.5GB and 2.1GB Fast ATA-2 drives. The drives, which run at 5,400 rpm, will be part of Seagate's new Medalist Pro family.

The Medalist Pro 2.5 is expected to supersede Seagate's three-platter Medalist 2.5GB drive. The Medalist Pro 2.5, which can transfer data as fast as 14.5MBps, will ship with DiscWizard to solve BIOS and partitioning isaues, officials said. Seagate does not give prices for its drives.

Western Digital is at (714) 932-5000.
Seagate is at (408) 438-8111.

— Deborah DeVoe

Oracle NC

Continued from page 27

the $500 price point, IBM officials said. (See "Thin clients gain legitimacy," May 20, page 1.)

Either way, the NC's price and performance may initially hinder its widespread adoption, according to analysts.

"The way they're getting to $500 is by leaving off the disk drive and monitor," said Nathan Brookwood, an analyst at Dataquest Inc., in San Jose, Calif.

"But you can't read text effectively off of a TV monitor, and no disk drive means no user autonomy for storage and security," Brookwood added.

ORACLE'S DESIGN PROTOTYPE *for the laptop version of the NC includes an LCD display.*

"We still see it as a niche product. Two hundred dollars or less is the magic price point," said Mike Feibus, a principal analyst at Mercury Research Inc., in Scottsdale, Ariz.

But Netscape Vice President Marc Andreessen countered that if the NC consortium can get the telecommunications companies to agree to upgrade their cabling, it may create a situation akin to that of cellular phones, in which vendors would offer NCs at no charge, and users would pay only for the network services.

Among the NC-compliant products announced were

- computing engines from Digital Equipment Corp., Advanced RISC Machines Ltd., VLSI Technology Inc., and Cirrus Logic Inc.;
- cable modem and PowerPC support from Motorola;
- printers from Lexmark International Inc.;
- print and CD-ROM servers from Axis Communications Inc.;
- terminals from Funai Electric Co. Ltd.;
- Web applications from Macromedia Inc.; and
- video compression technology from Eidos Technologies Inc.

The final draft of the NC Reference Profile is not expected to be delivered until August.

Oracle, in Redwood Shores, Calif., is at (415) 506-4176.

SunRiver to go with network computing flow

By Carolyn A. April

HITCHING ITSELF TO the thin-client wagon train, SunRiver Corp. will soon make its entry into this highly promoted market with a multiple-product family of network and Internet computing devices.

By the third week in July, the Austin, Texas-based vendor plans to roll out two network computers for less than $1,000 each. The devices are designed for the corporate enterprise and are capable of accessing data from Windows, Unix, legacy system servers, and the World Wide Web, said Gerald Youngblood, president and CEO.

A third, Java-enabled device that will focus on downloading applets from the Web is expected from SunRiver at the same time. It will also cost between $500 and $1,000.

SunRiver's devices will adhere to the common set of specifications outlined last week by Oracle Corp., IBM, Apple Computer Inc., Netscape Communications Corp., and Sun Microsystems Inc., including support for Sun's Java, HTML, HTTP, and Common Gateway Interface. (See related article, page 27.)

Shaped like a pizza box with dimensions of 1.75 inches by 9.75 inches by 9.25 inches, the devices will be based on the Intel Corp. i960 RISC microprocessor, running at speeds of 25 MHz to 33 MHz. The products will sport 4MB of DRAM, expandable to 32MB. They will also include 1MB of video RAM, expandable to 2MB, and 510KB of flash memory for the boot loader. They will support Super VGA screen resolutions of at least 800 by 600 pixels.

The device will not contain a hard drive or a fan. It will run on a derivative of the kernel-based Mach OS, which was initially designed by Carnegie-Mellon University to serve networks.

SunRiver's network computer

- Intel i960 RISC microprocessor
- 25-MHz to 33-MHz performance
- 4MB DRAM
- 1MB video RAM
- 510KB flash memory
- 800-by-600-pixel Super VGA resolution
- 1.75-inch by 9.75-inch by 9.25-inch dimensions

The network computer will boast built-in 10Base-T Ethernet or modem connections, depending on the model.

"We truly believe that the network computer is not a fad but an underlying change in the way computing will be done in the future," Youngblood said.

"The technology will be based on existing standards, a lot of which are driven by the growth of the Internet," Youngblood added.

SunRiver is one of several vendors expected to unveil network computer products this year. Their hope is that these essentially inexpensive thin clients, with their simple maintenance requirements but broad server- and Internet-driven computing capabilities, will replace desktops.

"[SunRiver] is moving aggressively in this area and smartly not excluding access to Windows-based applications," said Eileen O'Brien, an analyst with the International Data Corp., in Framingham, Mass.

SunRiver is located in Austin, Texas, and can be reached at (512) 346-2447.

Ballmer

Continued from page 27

The Windows 95 launch has certainly been an important thing for us. Win95 is now installed on between 70 percent and 75 percent of all new computers shipped around the world. And so it has gotten off to a very, very good start. People say, "How are the upgrades going?" We're above our plan for upgrade sales. I'd say probably a little bit below our plan in the largest businesses, but overall we're very pleased at the reception.

How is Windows NT faring?

The NT business and our server businesses have grown dramatically. It's up over 150 percent year-on-year. We've got a server business that's almost $1 billion a year. If you compare, Oracle [Corp.]'s server business is about $1.5 billion to $1.7 billion and Novell [Inc.]'s server business is about $1.7 to $1.8 billion. So we are now over half an Oracle or half a Novell in terms of server software sales. The other big investment we've made in the enterprise space is in technical support. We're now up to over 2,000 mission-critical, seven-day, 24-hour support people around the world. I think you can get a wider range of support offerings and better turnaround on mission-critical software issues from us than you can from almost anybody, with the possible exception of Hewlett-Packard [Co.].

There have been a lot of issues raised about Windows 95 and NT. You seem to be pushing Windows 95 for home use and NT for corporate use. Is Microsoft ever going to sync up the code base for these two environments?

Let me give a few comments, because that is an issue that never got justice in any press. In a long-term sense, say eight years from now, we'll only have one code base. Everything will be on the NT code base. And you can take that as an absolute prediction for eight years from now. I don't think our customers or we need to have a two-code base. On the other hand, today we need two code bases for a variety of reasons.

We have one code base that is smaller, and more compatible, both from an application and a hardware perspective. And it happens to right now have a couple of features that the high end doesn't, particularly in the area of Plug and Play, which is most germane for the laptop users. We have another system — NT — that is more scalable, has security built in, is a little bit more demanding on the machine resources, and a little less compatible, both from an applications and a hardware perspective. And you could say one is for 'A' and one is for 'B.' Unfortunately it tends to blend. We've found people tend to go NT Workstation when they're bringing in a new machine, which typically means a replacement machine. What that can mean, of course, is having three platforms. You've got 3.1 on whatever you haven't touched; you've got Win95 on the systems that you have touched; and you've got NT on the new systems that you're bringing in.

When you say you will merge Win95 and NT in eight years, are you saying there will be a single platform, or will Win95 and Windows NT blend and create six other products? Will we still have to deal with variations?

That question really is a very good one. Win95 and NT will blend. But will there be a need for a high-end compatible thing with NT? We don't anticipate that need. That is, we think we've got an architecture that works pretty well for that period of time, so there's no need to have an 'A' and an 'A++.'

That doesn't mean there won't be other add-ons and utilities and things you could buy. But I say that today, knowing that there still may be some issues that drive us to have such a product by eight years from now. I just know we won't need both the 95 kernel and the NT kernel. We could need NT++, but I don't think so.

What's the future of 16-bit applications? We have modest plans for enhancing our 16-bit applications. We have modest plans for enhancing 16-bit Office. If you look at the work in Office that we'll bring out toward the end of this year, that work will go strictly on the 32-bit platforms. A lot of people are doing some of their intranet and Internet work on the 16-bit platform, but they're not doing all of it.

Does that mean there will be problems for people with 32-bit Excel who are trying to share data with people on 16-bit platforms?

That's almost a separate issue because you're going to have that problem anyway. It's not an answer to say, 'Oh, we'll put all the new features back on the 16-bit and then things are fine.' The No. 1 problem I think in most corporations is that even if you could upgrade every system, you can't do it instantaneously anyway. So the real question is: 'Do we have a level of interoperability?' And I think in the next release of Office we've probably done the best job we've ever done [to help users] save in the old format. We know that's an area of great concern for the user base.

InfoWorld Street Prices

CD-ROM drives

Internal six-speed drive	Access time[1]	Low	High	Average	Change from February
NEC MultiSpin 6Xi	145	$239	$345	$304	-24%
Plextor 6Plex Internal	145	$259	$429	$330	-25%
Teac 6X CD-56E	140	$97	$189	$131	-46%
Toshiba XM-3701B	120	$189	$339	$245	-27%
External six-speed drive					
NEC MultiSpin 6Xe	145	$329	$491	$419	-20%
Plextor 6Plex External	145	$345	$530	$411	-21%
Internal quad-speed four-disc changer					
NEC MultiSpin 4Xi	350	$179	$290	$256	-8%
External quad-speed seven-disc changer					
NEC MultiSpin 4Xc	350	$309	$370	$341	-3%

InfoWorld Street Prices are based on telephone surveys of resellers and on print advertising in computer publications and regional newspapers. Price information was collected between May 12 and May 18.

1. Access time in milliseconds.

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WINDOW MANAGER · BRIAN LIVINGSTON

The disappearing act of Windows 95's fax cover page

WINDOWS 95 PROVIDES a basic fax capability through Microsoft Corp.'s Exchange Server, complete with cover pages. But, in a bizarre interaction, you may not see any cover pages listed in the Compose New Fax wizard or in the Microsoft Fax Default Cover Page section of its properties sheet.

This can happen merely because you've recently backed up your system. Many backup programs turn off a flag called the Archive bit on files that have been backed up. The Archive bit, which has been around as long as DOS, allows the backup program to indicate which files have been safely copied to tape or disk.

This enables the backup program to perform only an *incremental* backup the next time around, saving only those files that have changed since the last backup. Whenever you create or modify a file, its Archive bit is turned on.

Unbelievably, fax cover pages become "invisible" to Microsoft Fax and Exchange if the Archive bit has been turned off for .CPE files. This invisible quirk can also occur, according to Microsoft, if you create a cover page in an unknown format, regardless of the setting of the Archive bit.

Fortunately, there is now an easy cure. Microsoft has developed a free file, known as COVER_PG.EXE, that updates the .DLL and other files in Windows 95 that cause this problem. To get COVER_PG.EXE (a 144KB file), create a temporary folder for the file. Then set your browser to http://www.microsoft.com.

When Microsoft's home page appears, click the Support icon. (It looks like a life preserver.) Then click the heading Free Software. In the dialog box that appears, select Windows 95 as the product and type cover page as the text to search for.

You should see a window that allows you to click COVER_PG.EXE to download it. Save the file in your temporary folder. When the transfer is complete, find the file in Explorer and double-click it. After a few files are extracted and copied to your Windows System folder, you'll see a message to restart Windows. Do so, and your problem should be cured.

You now have the ability to delete or archive the COVER_PG.EXE file. If you can't download this file, you can work around the problem manually by right-clicking .CPE files in Explorer, selecting Properties, and turning on the Archive bit for each one.

Say, how about that Tray?

I wrote on May 13 (page 35) about Win Tray, a $12.50 shareware program that allows you to place tiny icons for as many as eight applications in the Tray, the recessed area near the clock in the Task Bar. Readers have been sending me tips about their favorite enhancements to this idea.

For example, Icon Corral is just $5; it not only places application icons in the Tray, but it also allows you to remove the space-wasting buttons for these applications from the Task Bar itself while they're running.

You can download a fully functional version from http://www.cs.washington.edu/homes/erask/win95.html. Release 1.0i has been available for weeks, but 2.0 is in final beta testing and may be gold by the time you read this. Release 2.0 enables you to configure an executable's Task Bar behavior from a new tab on its properties sheet. Tray Shortcuts is a free program that doesn't remove applications from the Task Bar but does place icons in the Tray-like Win Tray. I found the Tray Shortcuts file, TSCUTS.ZIP, at http://www.cyberramp.net/~clovis/tscuts.zip.

Copies of *Windows 95 Secrets* go to Bruce J. Miller, Bob Gollihur, and John A. Schaefer for sending me the tips about these utilities.

Brian Livingston is the co-author of Windows 95 Secrets *and author of three other Windows books (IDG Books). Send tips to brian_livingston@infoworld.com or fax: (206) 282-1248.*

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"WHEN WE WANTED TO TAKE THE RISK OUT OF RISK MANAGEMENT... WE CALLED THE BUILDERS."

Alan R. Josefsek, Managing Director, Information Systems Div., Sedgwick James, Inc.

PepsiCo, Inc.'s losses from accident, theft, and seasonal risks come right off the bottom line. And that means PepsiCo subsidiaries and divisions like the Pepsi-Cola Company, Frito-Lay, Taco Bell, KFC, and Pizza Hut, have got to get a handle on these risks to be able to create real-world business plans. How do they do it? With a new risk management system called INFORM™ for Windows™ developed by Sedgwick, the world's second largest insurance broker.

Every week, Sedgwick loads the latest casualty claims data from the nation's leading insurance carriers into a FOCUS database resident on its RS/6000 distributed network. The database is then accessed via the PepsiCo wide area network by more than fifty desktops and remote laptops equipped with the INFORM risk management system. Both the RS/6000 and local PC's are enabled with Information Builders' EDA/SQL middleware providing PepsiCo managers and business analysts with transparent data access from a variety of hardware/software configurations.

The INFORM risk management system combines the numbers crunching power of FOCUS with the graphical analysis capabilities of FOCUS/EIS for Windows. The result… PepsiCo managers at all levels can pinpoint critical trends, drill-down for detailed back-up information, identify potential problems, and plan intelligently to minimize risks and maximize profits.

The INFORM risk management system is just one of thousands of examples of how Information Builders has partnered with the world's leading corporations and government agencies to create enterprise-level decision support systems. To find out how Information Builders' technology and services can help your organization, call 800-969-INFO.

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SHIPPING

Landmark Systems Corp. last week shipped SmartAgent for Oracle, a $3,750 add-on to its PerformanceWorks database performance-management toolset. SmartAgent for Oracle monitors Oracle database performance, storage capacity, and response time. PerformanceWorks, which costs $12,000 when bundled with SmartAgents, also monitors Sybase Inc.'s and Microsoft Corp.'s SQL Server databases. (703) 902-8000.

ANNOUNCED

SMART CORP. last week announced DB Workbench, a graphical tool for migrating and transforming mainframe flat-file databases to Oracle relational format. It runs on HP-UX, IBM's AIX, Sun Solaris, and Irix, and costs $37,500 for a four-user license. A Windows NT version is slated for late summer. (415) 988-8896.

IBM next week will announce the Adstar Distributed Storage Manager, Version 2.1, for Windows NT 3.51 and Windows NT 4.0. The software, due to ship in September, will provide automated data backup, archiving, retrieval, and disaster recovery for Windows NT servers. Both single-server and network versions will be available. Pricing will be released in August and is expected to be less than AIX versions, which start at $5,000 per server. (800) 426-225S.

XDB SYSTEMS INC. has announced its Client/Server StepWise software migration package for organizations wanting to off-load their IBM mainframe applications to client/server configurations. The DB2/MVS-specific offering, which is priced starting at $19,995, is due in November. Future releases will include support for Oracle, Sybase, and other popular relational databases. (410) 312-9300.

MICRO FOCUS LTD. is shipping Challenge 2000 Pilot, a year 2000 conversion project management tool. Pricing starts at $46,500. (415) 856-4161.

NT 4.0 beta gets thumbs up for improved administration

■ But added wizards are a little too much in latest version due in late summer

By Paul Krill

USERS ARE EXCITED about improved TCP/IP address management in the second beta implementation of Windows NT Server 4.0, but some seem to feel patronized by Microsoft Corp.'s use of wizard technology.

Users said they were pleased with improvements such as an enhanced Domain Name Service (DNS) server for resolution of TCP/IP names and addresses.

REACTION

However, some users said that the new administrative wizards bordered on overkill.

"Automating something that's easy isn't helpful," said Steve Day, IS coordinator at NorthCenter Foodservice, an Augusta, Maine, food distributor.

New wizards group common server-management tools, adding accounts, printers, and programs to a single place.

NT already offers functional simplicity, Day said.

"Basically, I don't resort to wizards," said Briscoe Stephens, a systems coordinator at the NASA Marshall Space Flight Center, in Huntsville, Ala.

But the DNS server is "something we've been begging for," Stephens added.

The new beta release adds a graphical administration tool for DNS.

Stephens expressed concerns, however, about whether Microsoft had fixed numerous bugs NASA detected in the first beta.

The second beta offers better network driver support, Stephens said.

A Microsoft official said the company believes the new beta offers improved quality and fewer bugs.

Although Stephens said NT is easier to administer than rival Novell Inc.'s NetWare, an analyst briefed on the product pointed out that NT still lacks an enterprise directory.

"Windows NT Server still lacks a real directory, and there obviously will have to be something done in a future release," said Steve Kleynhans of the Meta Group Inc., based in Stamford, Conn.

Beta tester Robert Lee applauded NT for its ease of use.

"Now Microsoft is putting in tools that are going to allow the computer-illiterate to take advantage of the advanced operating system, such as setup and remote-access tools," said Lee, president of Results from Technology, a network design consultancy located in Irvine, Calif.

The new beta also features Distributed Component Object Model, allowing components to communicate across networks. However, NorthCenter's Day said this is a feature not needed for a while.

"We're mostly doing file and print services and terminal emulation right now. We're looking at getting into something like object-based network programs, but it'll be a few years," Day said.

GemBuilder for SmallTalk eases three-tier apps

By Ted Smalley Bowen

GEMSTONE SYSTEMS INC. this week will release Version 5.0 of its namesake object database and SmallTalk development environment and new integration, middleware, and administration tools.

Slated to ship in June, GemStone 5.0 sports greater scalability through lower client-memory requirements and support for object repositories as large as 50GB, company officials said.

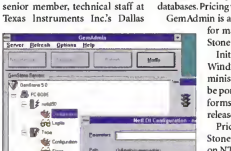
The object repository stores business processes, rules, procedures, and data, implemented according to a common business object model.

To ease three-tier application deployment, GemStone has introduced GemBuilder for SmallTalk, which replaces the GemStone SmallTalk Interface, a utility for partitioning application objects across clients and servers.

To allow the development of Internet and intranet applications, GemStone will add Java-client support through a GemBuilder for Web version due later this year. A Java implementation of the company's application server for Java-only applications is due in mid-1997, according to director of corporate marketing Brian Edwards.

The upgrade includes a speedier virtual machine that interprets SmallTalk applications at run time, and more efficient native-code generation.

"[The new virtual machine] could be one of the biggest pluses. One of the things it provides is improved performance of SmallTalk implementations. This could allow us to do a lot more implementations on the server side, so we can use GemStone as more of an application server," said Mark Anderson, senior member, technical staff at Texas Instruments Inc.'s Dallas wafer-fabrication operation.



GEMSTONE'S GEMADMIN *tools provide control and editing of GemStone services.*

GemStone will roll out several new connectivity and management utilities.

The Beaverton, Ore.-based company's GemConnect packages for Oracle and Sybase, which are sold separately, provide access from the GemStone 5.0 object repository with Oracle Corp. and Sybase Inc. databases. Pricing was not available.

GemAdmin is a set of GUI tools for maintaining GemStone applications.

Initially available on Windows NT, the administrative tools will be ported to Unix platforms in subsequent releases, said Edwards.

Pricing for GemStone 5.0, which runs on NT and Unix, starts at $6,000 for a single-user developer's license and includes the administration and partitioning utilities.

GemStone can be reached at (503) 629-8383 or at http://www.gemstone.com.

Digital focuses on multimedia with server line

By Deborah DeVoe

PREPARING FOR an expected increase of corporate interest in multimedia, Digital Equipment Corp. will announce this week its Mediaplex Network Servers that will deliver full-motion, full-screen video and multimedia applications to client desktops.

The servers, which are available now, will enable corporations to provide desktop-based training, corporate communications updates, intranet multimedia access, and multimedia file storage.

The Mediaplex servers are based on Digital's AlphaServer 600 and 400 models and 64-bit Unix-based Mediaplex software which uses the standard network file system protocols. They will support applications that are OLE- or Media Control Interface-compliant running in a network environment, officials said.

The servers will be available in three configurations. The workgroup server, based on a 233-MHz AlphaServer 400, supports 40 1.5Mbps video streams and 90 hours of MPEG-1 video. A system with 64MB of RAM and 21.5GB of RAID storage costs $45,995.

Both a pedestal and rack-mount department systems are also available, based on the 266-MHz AlphaServer 600. Both support 80 1.5Mbps streams and come standard with 128MB of RAM. The pedestal system, which can support 90 hours of MPEG-1 video, starts at $89,995 with 34.4GB of storage. The rack mount, which can support 180 hours of MPEG-1 video, starts at $107,995 with 51.6GB of storage.

An unrestricted license for Windows 95-based client software is included with the servers; support for NT and Macintosh clients is due in late July, officials said.

Digital, in Maynard, Mass., is at (800) 344-4825.

Unix, Windows NT multidimensional database due from IBI

By Cara Cunningham

INFORMATION BUILDERS INC. (IBI) last week announced that its Focus Fusion multidimensional database will ship for Unix operating systems June 30; Windows NT versions are slated to ship during the fourth quarter.

Focus Fusion, IBI's foray into the database server market, is a multidimensional database designed for use in data warehousing and other business-analysis operations, said officials with the New York–based company.

▸ Multidimensional databases are specialized for OLAP applications because they give users several views of their data.

The database gives users fast access to large amounts of data and lets them perform complex ad hoc queries, reports, or online analytical processing (OLAP), officials said.

The database features what IBI calls OverLAP technology, which gives users quick access to both relational and nonrelational flat-file databases distributed across an enterprise. The database works with third-party reporting, querying, and OLAP front-end tools.

"Businesses creating data warehouses with a combination of legacy and relational data sources will want to investigate IBI's Fusion because of its very broad data-access capabilities," said Frank Gillett, senior analyst with the Hurwitz Consulting Group Inc., in Newton, Mass.

By leveraging IBI's EDA database middleware, Focus Fusion can also be used as a front end to relational and legacy databases, letting users transparently drill through to the information they need without loading all the decision-support data in a single dedicated data warehouse, officials said.

The database server, administrator kit, and parallel data-query licenses are priced ranging from $37,545 for 16 users to $110,180 for 128 users. The database will run on Sun Solaris, IBM's AIX, HP-UX, and Digital Unix.

IBI can be reached at (212) 736-4433.

BRIO TO SHIP WEB VERSION OF OLAP TOOL

BRIO TECHNOLOGY INC. will join the list of vendors looking to connect World Wide Web–browser users to back-end data warehouses with a series of enhancements to its BrioQuery Enterprise querying and on-line analytical processing (OLAP) tool.

The Palo Alto, Calif., company plans to ship in October software to display SQL database reports on a Web server, allowing a browser user to view existing reports and queries.

Next year, Brio will release a Web-browser plug-in version of its BrioQuery Enterprise desktop decision tool to let users do OLAP functions, such as selecting different views of data, with a browser, officials said.

Users will need to rely on a SQL query engine at the database server for initial retrieval but may generate OLAP reports on the client PC. Brio will complement this client-based OLAP capability later next year with an ad hoc query tool that will run in the browser.

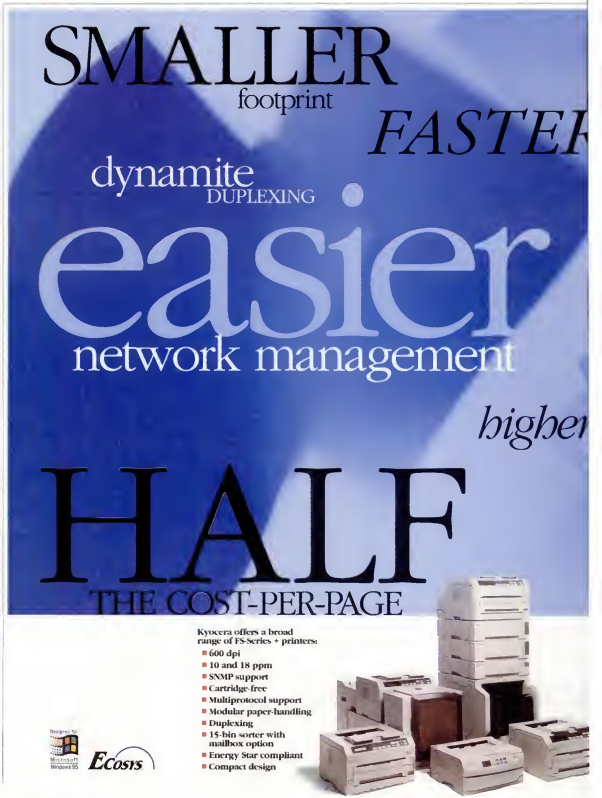
Analysts said Brio's Web-access strategy is overly cautious.

"All the mainstream data-access players are figuring out how to play in the Web space," said Don DePalma, analyst with Forrester Research Inc., in Cambridge, Mass. "The first step is to provide a data stream that fits into an HTML browser. An October delivery date for this piece is conservative."

After implementation, users will gain the cross-platform functionality that is intrinsic to browsers, and the ability to get OLAP-level information without having to invest in specialized query tools and a live connection to a database server, company officials said.

Brio can be reached at (415) 856-8000.

— Mark Leon



Paradigm puts human resources on Web

By Pardhu Vadlamudi

PARADIGM SOFTWARE Development Inc. last week unveiled a World Wide Web–enabled version of its employee evaluation and human resources applications.

Paradigm's WorkWise Employee File 3.0 lets users deploy and access the Windows NT–based application on corporate intranets and the Internet.

The new version works in conjunction with Paradigm's existing administrative tool for storing employee records, company officials said. The package is a home-page development application for setting up a corporate intranet to track employee information and generate reports with links to related information, officials said. Employee data can be accessed through any standard Web browser.

Managers can still use the earlier version of WorkWise as a database of employee files and link to the new Web edition for updating performance records over the Internet. The updated employee information is automatically converted to HTML, and users can generate custom views of an employee's record.

"We're looking forward to creating Web pages for each department so our customers can dial in and get the information," said beta tester Todd Edmondson, president of software developer TVI, Inc., in Vancouver, British Columbia. "We've had applications, including WorkWise, running on Windows 95, but now we'll have the back-end reliability."

Future versions of WorkWise will feature an embedded workflow engine for processing and managing employee data over the Internet, officials said.

The Web edition of WorkWise Employee File 3.0, which will be available in July, is priced at $1,495 for a single-server and unlimited-user license.

Paradigm, in Seattle, is at (800) 967-5947.

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OPEN HORIZON BRINGS MAC INTO ENTERPRISE WITH CONNECTION

By Tom Quinlan

OPEN HORIZON INC. is readying middleware designed to link Macintosh systems to back-end databases.

Connection to MacOS, set to ship late this summer, will bring Open Horizon's directory, database, and application services to the Mac in an effort to integrate the system with enterprisewide data and applications.

"One of Apple's problems is [the Mac hasn't] been able to fully participate at the enterprise level," said Steve Angelo, vice president of enterprise sales and marketing for Apple Computer Inc., which worked with Open Horizon to design the middleware. "This is a step toward solving that problem."

Connection includes support for the Distributed Computing Environment (DCE) and X.500 through its directory services; support for CICS mainframe query system; support for Transarc Corp.'s Encina and BEA Systems Inc.'s Tuxedo transaction processing monitors via its application services; and single-password access and network security for databases such as Oracle and DB2.

The Mac will also be supported when Open Horizon adds Java support to Connection, said Chip Overstreet, vice president of marketing and business development.

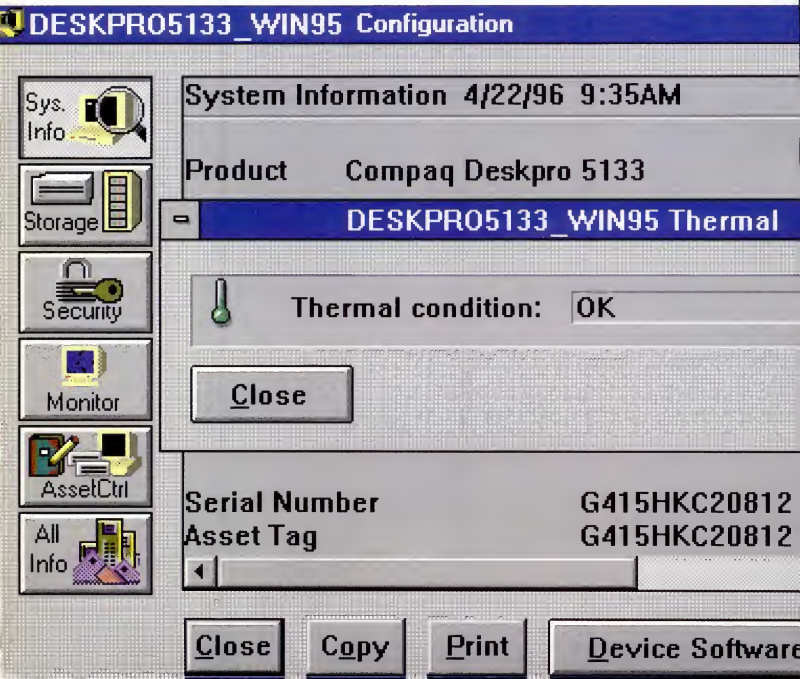
Connection for MacOS prices start at $100 per user for Oracle and DB2 support. Each additional database supported costs $99.

Mac users welcomed the agreement, particularly the added support for corporatewide standards such as DCE.

With 3,500 Macs installed as mainstream business desktops, the addition of Connection "extends the useful life of the Mac in certain business situations," said Ron Allen, a vice president at JP Morgan & Co., a financial services company based in New York.

Open Horizon, in Belmont, Calif., can be reached at (415) 598-1200.

A Lot Of Computers Claim To Be The Best. This One Sends You Its Health Records To Prove It.



The biggest headaches always seem to come without warning. Well, that's no longer the case when it comes to managing the desktops on your network. Thanks to Intelligent Manageability, found only on the Compaq Deskpro, we've revolutionized the way you manage and support your desktops on a complex network. The Compaq Deskpro constantly keeps you informed of its vital signs. So before something goes wrong, you know about it. And even better, you're prepared.

The Compaq Deskpro.
With Intelligent Manageability, we've revolutionized the way you manage and support your desktops on a network. It raises your control to an unprecedented level.

By taking full advantage of the broadest range of management tools, we've redefined the meaning of control. And knowledge. Now, status reports are retrievable right from the desk of the administrator, allowing you to manage your entire PC inventory from a single location. And our commitment to open standards has driven us to develop the widest range of industry partners, making Intelligent Manageability easy to integrate into any network.

More importantly, you'll be alerted to potential problems—before they become real problems. Hard drive failure is no longer life-threatening. Quite literally, the Deskpro monitors its internal temperature while the IntelliSafe hard drive conducts its own diagnostics, forewarning you of potential failure. And as a preventative measure, critical data is automatically safeguarded on a backup tape. All this gives you ample time to replace parts at no expense under our Pre-Failure Warranty.* We've even got a range of features that protect your data and components—just in case anyone without authorization tries to get hold of them.

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UniSQL gains performance and standards compliance

■ Object/relational databases key

By Cara Cunningham

UNISQL INC. IS SHIPPING a new version of its object/relational database that promises significant performance gains and adherence to a proposed update to the SQL standard for handling object data types.

The average UniSQL 3.5 application will see performance increases of as much as 30 percent, said Kevin Cunningham, UniSQL's manager of product marketing, in Austin, Texas. The company achieved this by redesigning major subsystems of the database, he said.

"There are noticeable performance improvements," said Barry Cooney, advanced technical engineer with Westinghouse Electric Corp.'s Commercial Nuclear Fuel division, in Monroeville, Pa., who beta tested the product.

This Westinghouse division defined a corporate edict to use Oracle Corp.'s database when it chose UniSQL to build its system for tracking fuel assemblies within its nuclear power plant.

"For an application of this magnitude, this is the best tool," because UniSQL can support very large amounts of data, Cooney said.

In addition to performance gains, UniSQL 3.5 adheres to the emerging SQL3 specification, Cunningham said. Sponsored by the International Standards Organization and the American National Standards Institute, SQL3 adds object definitions to SQL so users can store objects, such as user-defined data types, in relational databases. Completion is due in mid-1997.

Adding object features to traditional relational databases while sticking to the latest standards offers users the best of both worlds, Cunningham said.

"The entire concept for UniSQL was that there are good aspects of object databases, primarily the ability to model complex data, but also good things about relational databases that people have come to depend on, like automatic backup and recovery," Cunningham said.

This release enhances the Windows NT version by including an interface to C++ and to ParcPlace-Digitalk Inc.'s ObjectWorks/Smalltalk development tool. These features were already available in the Unix version, Cunningham said.

UniSQL 3.5 is available now and is priced at $10,800 for a four-user license on Windows NT and $12,000 for the same on Unix. The database runs on Hewlett-Packard Co.'s HP/UX, SunSoft Inc.'s SunOS and Solaris, Silicon Graphics Inc.'s Irix, and Digital Equipment Corp.'s Digital Unix.

UniSQL can be reached at (512) 343-7297.

Network-attached storage systems

Storage systems hook to networks

■ Centralized storage allows for easier backup and scaling

By Deborah DeVoe

A NEW PARADIGM in storage is starting to emerge as companies begin to deliver products that attach directly to a network.

Symbios Logic Inc. will announce this week its network-attached MetaStor RAID systems, while Optical Access International Inc. will unveil its CD/Enterprise Servers, CD-ROM servers that can attach to a network or file server.

Separately, Storage Computer Corp. will ship next month its Storage SuperServer, which supports as many as 48 concurrent host server connections.

Symbios Logic's MetaStor systems, due to ship in June, can attach directly to an Ethernet, TCP/IP, or FDDI network, with Asynchronous Transfer Mode support due in the first quarter of 1997. Any client running a network file system package can access the storage systems, officials said.

These network-attached systems let companies centralize storage for easier backup and enable scaling of the systems without bringing down a server, said William Reed, MetaStor managing director.

The company also plans to support Fibre Channel connections in the first quarter of next year to allow multiple servers to access the systems.

The MetaStor SH1000 and SH4000 have been optimized for file serving and feature a 99.99 percent uptime rate. The systems support as much as 252GB of storage and come with tape backup. The storage modules are hot-swappable. Redundant RAID controllers will be available in September.

Pricing starts at $49,375 for an SH1000 with 25.2GB of storage, an integrated DLT (digital linear tape) tape drive, and a 10/100Base-T Ethernet card.

Optical Access will also ship next month network-attached systems. The company will deliver its CD/Enterprise Servers, which come in Network Connection models and standard File Server models that connect to servers. The rack-mount systems come with 24 to 64 hot-swappable CD-ROM drives.

When attached to an IPX-based network, the servers can help improve data traffic by letting clients log directly in to the system, said Steve Wolsky, president of the Woburn, Mass.-based company.

Pricing starts at $18,595 for a 24-drive File Server model. The Network Connection models, which include a 100-MHz Pentium processor, 64MB of RAM, a 1.2GB hard drive, and a 10Base-T Ethernet card for managing requests directly, start at $21,595.

Storage Computer will also deliver advanced storage technology this June. It will ship its Storage SuperServer, a storage device based on the company's RAID 7 technology and capable of supporting in a cluster 48 concurrent host server Ultra SCSI connections. Support for Fibre Channel is due later this year.

Pricing starts at $325,000 for a 136GB model; the systems can support as much as 4 terabytes in a clustered configuration.

Symbios Logic, in Wichita, Kan., can be reached at (800) 862-7729; Optical Access can be reached at (800) 433-5133; and Storage Computer, in Nashua, N.H., can be reached at (603) 880-3005.

Storage products on the rise

- **Digital Equipment Corp.** is shipping its StorageWorks RAID Array 310, a subsystem that provides as much as 60GB of storage and supports connections to multiple hosts. Pricing starts at less than $10,000.
- **Amdahl Corp.** is shipping its fully redundant RAID Logical Volume Series 4500 Storage System for Unix and Windows NT servers. The Ultra SCSI–based system starts at $44,995 for a 20GB module.
- **Boffin Ltd.** will announce this week its Rackmount Hot Swap CD-ROM chassis for sharing data on a network. Available now, a system that can support 56 CD-ROM drives costs $29,999.

HELP DESK · BRETT GLASS

You can send data from 20,000 feet, but you'll find the cost is sky-high

Our staff uses cc:Mail Mobile to keep in touch with the home office when we're on the road. What equipment would we need to send and receive e-mail from a seat-back phone on an airplane?

Rajiv Patel

With regard to airplane phones, I've got good news and bad news. The good news is that connecting your laptop is easy. Just bring the dongle for your modem and an ordinary modular telephone cord. (Fuji sells a nifty, slim phone cord that rolls up into a credit-card-size container — ideal for use on a plane.) There's a jack on the phone to match.

The bad news is that the pricing on airborne phones has changed, raising costs dramatically for users of cc:Mail and similar programs. When I first began to make data calls from planes, GTE Airfone — which has a monopoly on airplane phones — charged by the minute.

This was good for those of us who use e-mail programs, such as cc:Mail Remote, which send your messages, get incoming mail, and hang up faster than you can carry on a voice conversation. What's more, there was a dollar-per-minute discount for data calls. (The rationale for this was that your modem can only work at 2400bps — much slower than on the terrestrial phone lines.)

But the data discount was quietly eliminated, and just this month GTE announced a new policy under which all calls cost a flat $15. This is devastating to cc:Mail users in particular for two reasons. First, it makes a few short calls several times more expensive than one long one. Second, a temporary decrease in signal quality can break the connection, requiring another $15 call.

When the rates were more favorable, I used airplane phones for data often: I even turned in some of my Help Desk columns from 20,000 feet! But now that the deck is stacked against short data calls, there are only two economical solutions: Wait to get to the terminal, or keep a continuous Internet connection open for the flight. Ironically, the latter — which is possible with the robust MNP 10 protocol — will actually consume more resources than a few short calls but will be cheaper under the new pricing scheme.

My wife and I each have a different work-related Internet service provider [ISP]. We would each like to access our accounts at home using our one computer and Windows 95. Is it possible to have multiple accounts and TCP/IP configurations on one Win95 computer?

Jeff Kolker

Yes, it's possible — and often necessary for system administrators who want to set employees up to telecommute. Unfortunately, one of the more frustrating aspects of Windows 95 is that its dial-in TCP/IP facilities are extremely difficult to configure, violate some Internet standards, and are different depending on whether one has the diskette or CD-ROM version of the operating system. Also, in a typical case of shortsightedness on the part of the programmers, you can't configure some vital parameters on a per-ISP basis.

In general, the Dial-up Networking icon is the place to define multiple ISPs in Windows 95's TCP/IP stack. But some of your applications (for instance, e-mail) may have to be reconfigured for each ISP as well. The way to do this on the fly will depend on the program. You may have to write a small batch file that swaps .INI files to make certain programs adapt to a different ISP.

Brett Glass' Help Desk answers business computing questions. To submit a query, call (800) 227-8365, Ext. 702, or send e-mail to brett_glass@infoworld.com. Visit his InfoWorld Electric Forum at http://www.infoworld.com.

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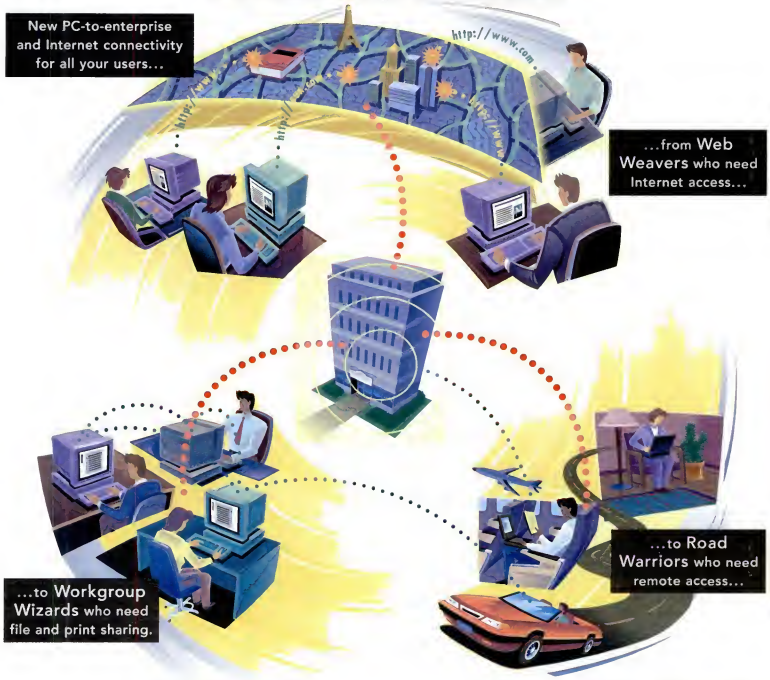

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PIPELINE

ANNOUNCED

Netscape Communications Corp. released News Server 2.0 last week. Users can download the beta version from Netscape's Web site at http://www.netscape.com. The News Server is targeted at corporations wishing to use newsgroups as a collaborative tool between companies and customers and as a collaborative tool inside the firewall. Version 2.0 of the News Server will now be fully integrated with Netscape's SuiteSpot server line. (415) 254-1900.

DIGITALSTYLE CORP. will this week announce WebSuite 1.1, the first upgrade of its style sheet and design tool for Web sites. New features include an improved interface and component editing and graphics capabilities. Shipping in early June, DigitalStyle WebSuite 1.1 is priced at $99; $199 for the Designer Edition. (800) 541-1175.

PERFORMANCE TECHNOLOGY INC. will begin shipping Version 3.1 of Instant Internet, a hardware or software product that allows as many as 50 users on a NetWare network to connect to the internet. Instant Internet will ship June 1 with a base price of $3495. (210) 979-2000.

SHIPPING

OPEN MARKET INC. announced Version 2.0 of WebReporter, a tool that analyzes Web server activity and access. Version 2.0 provides new GUI templates and session analysis. The product will be priced at $495. (617) 621-9500; http://www.openmarket.com.

HUMMINGBIRD COMMUNICATIONS LTD. is shipping a new version of its network file system (NFS) software that now includes an integrated Telnet application. The 5395 Windows NT and Windows 95 versions of NFS Maestro 5.1, and a $195 server that mounts other servers are all available now. The company plans to ship DOS and Windows versions in June. (415) 917-7300.

MVS hosts get Web server from Beyond

■ Mainframe Web access turns existing transaction systems into intranet servers

By Ed Scannell

HOPING TO GIVE the mainframe a more useful role in the colliding worlds of the Internet and enterprise computing, Beyond Software Inc. has released a Web server for IBM's MVS operating system.

The EnterpriseWeb/MVS server is aimed primarily at midrange MVS-class mainframes. It allows desktop users to view a variety of text and binary files, sound clips, and Java applets stored on mainframes.

"We think this product makes the mainframe a good citizen for enterprise computing and intranets. We do not expect the mainframe to dominate like it used to, but we would like to see it be included as just another player in the scheme of things," said Brian Reeves, president and co-founder of Beyond, which is based in Santa Clara, Calif.

The most important asset of a product such as EnterpriseWeb/MVS is that it allows users to leave mainframe applications and data where it resides, eliminating the need to port it to lower end systems.

"EnterpriseWeb/MVS allows the mainframe to continue doing what it does best, such as processing large amounts of data from a mainframe database, and allowing desktop users to bring down just a small subset of data they need to work with," Reeves said.

EnterpriseWeb/MVS is a port of the company's existing Enterprise Web/VM product. Earlier this month Beyond signed a marketing deal with IBM that allows Big Blue to resell that product to its corporate customers. Like Enterprise Web/MVS, the VM-compatible product allows desktop users easier entry, through a Web browser, to data stored on mainframes.

According to recent market numbers from International Data Corp., a market research company in Framingham, Mass., there is a 50 percent to 55 percent annual growth rate in millions of mainframe instructions per second. With sales of Netscape servers for internal corporate networks growing at a 70 percent rate, officials said that they are optimistic about Beyond's chances over the next year or two.

"About 22 percent of the Fortune 1000 are now using intranets," Reeves said. "We think that number could jump to 50 percent by the end of this year."

> There are currently 17,000 installations using IBM's MVS operating system on IBM and IBM-compatible mainframes.

With its support for HTML, EnterpriseWeb/MVS is compatible with all Web browsers that reside either on servers or on desktop systems, officials noted.

Some corporate users said they like the prospect of giving people a graphical interface to access and manipulate host-based data.

This saves money on mainframe applications redevelopment.

"EnterpriseWeb should give our legacy applications a boost, via a more familiar graphical interface, and they should require a minimal amount of redevelopment investment," said Grahamme Perry, an information specialist with Pacific Bell, in San Ramon, Calif.

EnterpriseWeb/MVS works with IBM's Internet Connection Server. However, Beyond officials said EnterpriseWeb/MVS is actually complementary to the IBM product, because it works with all previous versions of MVS.

IBM's own mainframe-Web integration product, the Internet Connection Server, only works with the latest release of MVS.

EnterpriseWeb/MVS server is currently in beta testing. It should be commercially available during the third quarter, according to company officials.

HDSL Internet connections boosted by new modem chip

By Luc Hatlestad

BROOKTREE CORP. has developed a transceiver that will enable OEMs to design products that allows users to connect to the Internet and run high-speed data and fax communications over standard telephone lines.

The Bt8960 ZipWire modem features the High-Bit-Rate Digital Subscriber Loop (HDSL) service, a high-speed data service that many telecommunications companies are beginning to investigate. When this capability is coupled with its integrated transceiver, it can support data transmission speeds as high as 416Kbps.

The chip is targeted at OEMs and is designed for implementation in PC network interface cards that will enable symmetrical data transmission rates as high as 384Kbps.

This transmission rate not only provides six 64Kbps channels for data and fax services, but it also gives the modem card enough bandwidth to run compressed audio and video clips and videoconferencing services over standard telephone cabling.

The ZipWire chip's primary early application will be to enable telecommunications companies to provide additional voice, data, and fax capabilities across their existing networks.

Instead of putting in new lines, a telecommunications company can install a ZipWire chip-based modem or modem card at the user's site and a line card at the central office, Brooktree officials said.

This contrasts with the 128Kbps rate of basic ISDN, one of the many contenders in the battle to provide high-speed connectivity to small businesses and the home.

Brooktree was able to attain such high speeds by combining analog-to-digital processing and digital signal processors on a single piece of silicon.

The combination of both processors on an ASIC dramatically increases transmission speeds.

> **The chip that turns your modem into a fast Internet link**
>
> - High-resolution, 16-bit high-speed analog-to-digital converter
> - Clock-multiplying phase locked loop and timing-recovery functions
> - Digital signal processor engine
> - Filters, amplifiers, and a line driver
> - High-resolution digital-to-analog converter

"We expect the completed modem cards to come in at $150 to $200 — a very good price point," said Kieran Taylor, a consultant for Telechoice Inc., in Verona, N.J.

The ZipWire chip will ship in volume in January 1997, priced at $20 per unit in quantities of 50,000.

Brooktree, in San Diego, can be reached at (800) 228-2777, or at http://www.brooktree.com.

THE WEB HOTLIST

Web sites worth checking out

1. **Hitachi PC** http://www.hitachipc.com
   A new line of mobile computing products is featured on Hitachi PC Corp.'s site. Learn about Hitachi's C-Series and M-Series notebooks, or visit the Solutions area for information on corporate connectivity and productivity issues.
2. **Cyberdog** http://cyberdog.apple.com
   Download Apple Computer Inc.'s Cyberdog 1.0, a software suite that integrates Web access functions with the Macintosh operating system. Also available are release notes, fact sheets, sample code, and the Cyberdog Programmer's Guide.
3. **Diba** http://www.diba.com
   Diba Inc.'s tastefully designed site features information on its Interactive Digital Electronic Appliances products and technologies. Read about Diba's Net Vision Internet televisions, under development with Zenith Electronics Corp.
4. **Iconovex Corp.** http://www.iconovex.com
   Bloomington, Minn.-based Iconovex provides information on its automatic indexing software products. Get an evaluation copy of AnchorPage, software for automatic hyperlinking and indexing of Web documents.
5. **Amzi** http://www.amzi.com
   Database and artificial intelligence software vendor Amzi Inc. offers product-related white papers, source code, and customer stories. Download a copy of WebLS, a freeware application that allows users to embed Amzi logic-bases into Web pages.

Send URL suggestions to James_battey@infoworld.com

Applications development

TCP/IP suite vendors place big bets on corporate intranets

By Yvonne L. Lee

FACED WITH increased competition, traditional TCP/IP vendors are looking at selling applications closer to the final user, with some developing and building tools for vertical applications running on intranets.

Frontier Technologies Inc. and NetManage Inc. said they plan to build tools and underlying technology for organizations to integrate browsing, mail, and conversation threads into applications.

"The browser technology will be driving that application, [but] it will be transparent to the user," said Willie Tejada, NetManage's vice president of product marketing.

The application will not appear to the user as a browser or other network application, but as a human resources, billing, or other mission-specific application, Tejada said.

NetManage will use both Microsoft Corp.'s ActiveX (formerly OLE custom controls) and Netscape Communications Corp.'s plug-ins to create these applications.

Frontier is working to create intranet applications for several industries, including insurance and healthcare, according to Erv Bleumner, vice president of engineering.

FTP Software Inc. would not say whether it planned to provide vertical market products or tools.

The migration continues a steady upstream path that started in August when Microsoft began shipping a TCP/IP stack and some basic connectivity applications with Windows 95.

Companies that once based their businesses on providing strong access to TCP/IP networks, including the Internet, were forced to build applications that would add value.

Many companies acquired others that already made network applications, formed partnerships with them, or were themselves acquired.

"TGV [Software Inc.] got snatched up by Cisco [Systems Inc.]; Intercon [Systems Corp.] went to PSI [Software Inc.]; Hummingbird [Communications Ltd.] got Beame & Whiteside [Software Inc.]; and FTP has been acquiring companies," said Cindy Borovick, manager of networking architectures at International Data Corp., in Framingham, Mass.

However, these companies may find the new markets even more competitive than their old ones.

The TCP/IP vendors are still competing against Microsoft, which not only offers the stack in Windows operating systems, but has included many of these suites' features in Internet Explorer.

They also face stiff competition from Netscape's client/server product suite and a raft of new applications from host connectivity vendors such as Attachmate Corp. and Wall Data Inc. Analysts say they expect the mergers and acquisitions to continue into next year and that some companies will disappear.

"They're going to have to build up real development systems that can compete," said Tim Sloane, an analyst with Aberdeen Group Inc., in Boston.

NetManage and FTP said they will continue to look to mergers and acquisitions, whereas Frontier said it will probably ally itself with other companies instead of acquiring or becoming part of them.

Many organizations will take advantage of the one-stop shopping afforded by these mergers, Borovick said.

"They used to look to IBM to run their enterprise networks. I think they're looking to Cisco now," Borovick said.

However, some users worry that their products may not get supported after a merger.

"It is harder to get things accomplished when that happens," said Mark Fox, consultant at a telecommunications company in Richardson, Texas.

This means many Fortune 500 companies are choosing to run the free Microsoft TCP/IP stack and use SAP America Inc. business applications, instead of developing their own in-house vertical market applications.

QuickServer Web tools will now support SunSoft's Java

By Jim Balderston

WAYFARER Communications Inc. announced this week it would support Java in QuickServer, a server and application development platform that lets interactive applications run over the Internet at Ethernet speeds.

The QuickServer product creates real-time updates of information, such as stock tickers, over the Internet by maintaining a continual link with the information source. When a change in information is found, such as a change in a stock price, the QuickServer sends an update that includes only the new information, not the entire file within which the change is included.

QuickServer features

- Allows for speedy updates of Web pages on the client via the Internet by only sending the changes in the HTML page, not the entire page.
- Now supports SunSoft's Java development language.
- Supports Netscape Navigator and Microsoft's Internet Explorer, runs on Windows 95, NT, Unix, and the Macintosh.

The company hopes that QuickServer technology will also find a role in enterprise intranets. It could be used on intranets as a way to distribute changes within existing documents without needing to transfer complete files across the network.

Wayfarer officials are expecting that support for Java will attract applications developers to the company's technology.

"Java enables a broader set of applications to be developed," said Robert Schoettle, vice president of marketing at Wayfarer.

QuickServer supports development in Visual Basic, C++, PowerBuilder, and Delphi, as well as Java. QuickServer will support Netscape Communications Corp.'s Navigator and Microsoft Corp.'s Internet Explorer on the client side, and it will run on Windows 95, Windows NT, Unix, and now Macintosh with the addition of the Java support.

Wayfarer has already licensed the technology to several application developers, including Simulate Inc., which is developing applications for pharmaceutical companies. Don Wright, director of business development for the Philadelphia-based Simulate, said QuickServer technology will allow Simulate to develop products that replace present means for keeping customers up to date.

"Instead of paper or e-mail, we can use this to inform our customers of changes," Wright said.

Wayfarer, in Mountain View, Calif., can be reached at (415) 903-1730 or http://www.wayfarer.com.

McAfee inoculates Internet, intranet firewalls

By Mark Leon

MCAFEE ASSOCIATES INC. is helping to improve the integrity of Internet and intranet firewalls with some new anti-virus software.

WebShield will operate inside company firewalls and scan SMTP, HTTP, and FTP (File Transfer Protocol) files coming across the Internet for viruses.

"We take the IP packets, reassemble them into files, scan the files, provide necessary alerts, and then pass the packets on to the internal network," said Tom Clare, network security product manager at McAfee.

The software is a modified Unix kernel optimized for security and speed. It runs on a dedicated system inside the Internet gateway. WebShield requires Intel Corp. or Digital Equipment Corp. Alpha-based hardware.

WebShield works with a firewall but is a separate system. Analysts said that was the right way to approach the problem.

"Anti-virus software should not run on the firewall," said Michael Zboray, analyst with Gartner Group Inc., in Stamford, Conn. "The job of the firewall is to get information in and out as fast as possible, and you don't want to bog it down with intensive virus scanning."

Although McAfee has a reputation in anti-virus software for PC LANs, WebShield represents its first foray into the OEM market. Two firewall vendors, Border Technologies Inc. and Secure Computing Corp., have agreed to sell WebShield with their network firewalls. McAfee is also working with Checkpoint Software Technologies Ltd. to ensure that WebShield will work with Checkpoint's FireWall-1.

Although there may be some competition already for scanning certain file types, the ability to scan other types of data places WebShield on the cutting edge.

WebShield will be available in August. A two-year license costs $3,995. McAfee, in Santa Clara, Calif., is at (408) 988-3832.

Tympani's NetAttache acts as Web agent

By Yvonne L. Lee

TYMPANI DEVELOPMENT INC. has unveiled a new product that watches specified Web pages and then retrieves changes and new information for users.

The core of Tympani's new NetAttache is the Brief, a profile of the information the user wants to retrieve. The Brief can be set to run at a scheduled time, map linked pages at a user-specified number of links, monitor for certain information, and search individual Web pages.

Users of NetAttache can specify whether the retrieved information should include graphics, plug-ins, applets, and other information associated with a Web page. The program can be set to check for differences in a file, and it can point out where those differences are.

NetAttache does not include its own Web search engine but, instead, invokes Yahoo, AltaVista, Lycos, Excite, and others.

Beta tester Tom Bigelow, a software engineer at Sentinel Graphics, in Boulder, Colo., said he uses NetAttache to examine information from home that has been downloaded at high speeds from a T1 connection at his office.

► NetAttache is one of a growing number of products for users to search Web information off-line.

NetAttache is due to ship at the end of this month for Windows, Windows 95, and Windows NT, priced at $49.

A "light" version of the software that doesn't point out page changes or have Java support is available from the company's Web site at http://www.tympani.com. Tympani, in Sunnyvale, Calif., can be reached at (408) 735-9555.

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Will the Internet bring an end to business computing as we know it?

Not at all. It will simply knock down the walls between people, between departments — even between companies.

The promise of the Internet, while intoxicating to some, is threatening to others. Because along with the unlimited access and opportunity it provides, comes the need for new strategies and new technologies. Happily, those who've begun the transition to client-server already have much of what they need in place. And to help businesses incorporate the Internet and intranet into their operations, Microsoft is integrating the necessary technology into many of its products — from desktop to server to tools.

For example, it's never been easier to connect desktops to the Internet. That's because both Microsoft® Windows® 95 and Windows NT® Workstation operating systems have all the "plumbing" built right in. Viewing content is just as effortless. With Microsoft Internet Explorer, users can browse the Internet (or internal corporate webs) whether they're working on the Windows platform or on the Macintosh.

Of course, making web content easy to view is only the beginning. To be useful to organizations, content has to be easy to create, too. Which is why the latest generation of Microsoft Office applications, along with Internet Assistants, allow users to develop web content without programming. They simply save their work as HTML, the way they would any other document. Such ease-of-use also extends to the newest member of the Microsoft Office family, the Microsoft FrontPage™ web authoring tool, which lets users create and manage entire web sites, even if they've never so much as programmed a VCR.

The Internet is very much a part of our BackOffice™ family, too. With Microsoft Internet Information Server, we've extended the performance of Windows NT Server to make the ideal Internet platform. Now every organization can host and manage web content and applications securely and reliably. And, with Microsoft Exchange Server, secure and reliable e-mail is also a reality, whether it's traveling over the Internet or within your organization.

The truly interactive web page has arrived as well...and with it, full motion video, audio and moving text. Advances made possible by technologies like ActiveX™ controls, which let developers embed sound, video, and applications without having to learn new languages.

Yes, the walls are coming down, but it's not the end of business computing. Just the next, most practical evolution.

To learn more, or to download our free Internet products, visit http://www.microsoft.com/internet/go5/

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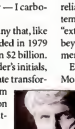
FROM THE ETHER · BOB METCALFE

Building an extranet may require an improvement in your DARTs game

SOME 40,000 RUNNERS gathered last month for the 100th running of the Boston Marathon. The starting line was in Hopkinton, Mass. I wasn't there to win. I'm into half-marathons now — I carboload but don't run.

Hopkinton is home to a company that, like my baby, 3Com Corp., was founded in 1979 and has annual sales of more than $2 billion. The company, named for its founder's initials, is in the midst of a fourth corporate transformation. The company grew from zip to $100 million as an add-on memory supplier for minicomputers.



In 1990, it got into intelligent storage subsystems for IBM System/390s, AS/400s, and compatibles. In 1994, it entered the "open storage" market, providing its RAID disk array to Unix and PC LAN servers. And now, with Einstein's mass-energy conversion equation as its logo, the company wants into the network file server business.

And so, on your behalf, I drove out from Boston to Hopkinton to welcome EMC Corp. to the Internet. I found Einstein's picture and references to http://www.emc.com in the lobby. My idea for EMC was that its high-reliability and high-performance storage systems would be great for those of you building "extranets" — using the Internet to reach out beyond intranet firewalls for electronic commerce with your customers.

EMC's vice president of engineering, Moshe Yanai, is way ahead of me. EMC's storage systems are high-capacity, already up into the terabytes (thousands of gigabytes). Yanai said that EMC's push into networking is all about economies of scale and "storage consolidation." With a twinkle in his eye, he told me that his goal is to put all the information in the world on one EMC server.

OK, now listen to this: Yanai's worry, which he explained with a graph drawn in my notebook, is whether, after the perfection of "atom-man ipulation" disk technology, the demand for information storage will be able to keep up with the supply of high-capacity disks. Yes, Yanai asked me to reassure him that the Internet is going to have uses for all the storage capacity that EMC is working to make available. EMC's approach to network storage starts with the integrated cached disk arrays (ICDAs) it's been attaching to mainframes and minicomputers.

ICDAs spread information redundantly over a large number of small disks, which can be replaced on-line without a hiccup, while keeping the most heavily used information cached in fast semiconductor memory. Reliable and fast, as we'd like the Internet to be someday. But, instead of mainframes or minicomputers, EMC is now attaching DARTs (data access in real time) to its ICDAs.

DARTs are N+1+redundant Pentium "data movers" that carry streams of data between EMC's reliable and fast ICDAs and various networks. Ask whether EMC's DARTs use Unix, NetWare, or Windows NT, and you learn that DART is an entirely new server operating system. DART was developed from scratch to guarantee service to real-time requests interspersed with sporadic requests when transferring isochronous data in high volume.

EMC plans to introduce ICDA-DART-based network storage systems that support a variety of protocols over a variety of media, for example, NFS (network file system) over Ethernet, HTTP over FDDI, and MPEG over DS3 (45Mbps). Always on the outlook for vaporware, I asked how long after the NFS/Ethernet DART would we have to wait before seeing the MPEG/DS3 DART. Yanai whisked me off to see a startling demo of HDTV.

A 17-square-foot terabyte EMC Media Server had already been demonstrated for the National Association of Broadcasters in Las Vegas. It's NFS that has yet to be shipped. Isn't that backward, MPEG before NFS? EMC found doing a media server "easy." DART is an operating system with a history, which, judging from the resumes of its authors, goes back to media servers at Digital Equipment Corp. See http://www.computer.org/pubs/multimed/atwork/1995/fall/atwork.htm. Extranets will require big servers. And as electronic commerce ramps, those servers will have to be reliable and fast. As millions of consumers get involved, video will be required.

So I suggest you keep your eye on EMC and that worldwide server Yanai is building in Hopkinton.

Bob Metcalfe invented Ethernet in 1973 and founded 3Com Corp. in 1979. He receives e-mail at bob_metcalfe@infoworld.com via the Internet.

Internet terminals

Momentum rolls out $200 Internet device

By Rebecca Sykes

BOSTON-BASED Momentum Inc. hopes to clobber Oracle Corp.'s much-hyped but nonexistent $300 Internet appliance by launching its own rival Internet access device.

The company has introduced a 1-pound, small-screen, videocassette-size Internet device priced at less than $200, according to CEO and President Rich Kosowsky. Momentum's NetPad will let users surf the Internet and give them access to e-mail without the expense or training required to operate a PC, according to Kosowsky.

> Momentum's NetPad is a hand-held device with a basic screen, networked via a 2,400bps connection.

But the heart of Momentum's Internet strategy lies with those who host the servers necessary to operate the devices.

Momentum is negotiating with large service organizations, such as discount brokerage houses, that could use the low-cost device to let customers check their accounts or initiate trades and transfers.

Momentum's LinkPad server is a C++ application that runs on Windows NT, OS/2, and Unix operating systems, Kosowsky said. The LinkPad operates over existing telephone or packet-switched data networks or an X.25 interface, according to Kosowsky.

The NetPad connects to the server via a standard phone line using a 2,400bps modem, which is suitable for the small-screen, predominantly textual information that the devices display, Kosowsky said.

"There's nothing preventing us from making higher speed modems," Kosowsky said.

Momentum plans to make it easy for other personal digital assistant (PDA) manufacturers to be compatible with NetPad.

However, the limited graphics support capabilities of a simple hand-held device may cast a shadow over the product's success, analysts said.

"As the [World Wide]Web becomes more graphics-intensive, I doubt the PDA can follow," said John Robb, an analyst at Cambridge, Mass.-based Forrester Research Inc.

Kosowsky said that for users on the road, or in public places such as airports, the information retrieved by the device — for instance, e-mail — will be acceptable without audio, video, and other features.

Robb was not convinced that users will continue to be satisfied with bare-bones communications.

"That's the way it is — for this blink of the eye," Robb said. But expectations change, he added.

Momentum's system works by letting small-screen devices talk to highly graphical environments such as the Web.

The LinkPad server cuts through graphics intensity by translating HTML, the standard means of presenting data on the Web, to small-screen code, Kosowsky said.

"We're stripping off a Web site's high-resolution graphics and presenting the text and graphical elements," Kosowsky said, as well as using simple highlighting, underlining, and other techniques.

Momentum can be reached at (617) 262-2466.

Rebecca Sykes is a correspondent for the IDG News Service.

Oil Change tops off PCs with automatic software updates

By Jim Balderston

CYBERMEDIA INC.'s Oil Change will allow IS managers to delegate the task of software updates and upgrades on the desktop to an automated service that runs on the World Wide Web.

Oil Change is a service and a software product that notifies users when any updates or upgrades of software currently running on their desktops become available, said Scott Broder, product manager at Cybermedia.

The Oil Change service maintains a Web server and database that uses agent technology to constantly scour the Internet for software updates. On the client side, Oil Change lists all the applications stored on an Oil Change customer's desktop and enters that information in a company's database. When a software upgrade becomes available, the Cybermedia Web server notifies the user via e-mail.

"This has the potential to be very, very useful," said Jesse Burst, editor of the *Windows Watcher* newsletter. "The technology would be great for a corporate intranet."

However, Burst said Oil Change's success would hinge on how promptly software vendors alerted the Oil Change server to updates.

Cybermedia will work with software vendors through a program called Medallion, which allows vendors to send updates and upgrades to the Oil Change server.

The Oil Change software and service consists of four basic elements: notification of software changes; explanations of those changes; delivery of the updates; and, if desired, installation of the updates. A beta version of Oil Change will be available for download for individual users from Cybermedia's Web site in June. The retail version will hit the streets in September priced at $50, Broder said. The enterprise version will be available in December.

Cybermedia also plans to ship First Aid 95, an application that automatically fixes configuration problems in PCs.

Cybermedia, in Santa Monica, Calif., is at (310) 581-4700 or http://www.cybermedia.com.

THIS WEEK

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- Mustang Software Wildcat 5 ..... IW/2
- Crystal Web Report Engine IW/3
- Inside the Firewall, *by Dave Taylor* IW/4

ON-LINE, OFF-LINE

You can take it with you — with an off-line Web browser. Such tools let you download whole pages from your intranet or the World Wide Web, then browse them later.

WebWhacker, from The Forefront Group Inc., downloads single pages or entire sites while keeping the links intact. It's convenient for loading pages onto a laptop, then browsing on the road. Get a trial version of WebWhacker at http://www.ffg.com/.

FreeLoader Inc. has a free, advertising-supported service that lets you "subscribe" to sites on the Web. It then provides updates on a regular basis and even recommends new sites. Find out more at http:// www.freeloader.com/.

Netriever, from Metz Software Inc., downloads specified pages at scheduled times, then displays them as a slide-show screen saver or desktop wallpaper. It's perfect for delivering daily weather reports, news, or — no confess — the Dilbert home page. Get your trial version at http://www .metz.com/metz/.

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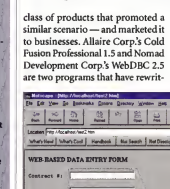
▸ Web database front ends

Two tools weld data to Web sites

By Kelly Conatser With all the paranoia about nefarious hackers sifting gleefully through the wealth of information stashed in corporate databases, it was just a matter of time before some enterprising developers with contrarian mind-sets created a class of products that promoted a similar scenario — and marketed it to businesses. Allaire Corp.'s Cold Fusion Professional 1.5 and Nomad Development Corp.'s WebDBC 2.5 are two programs that have rewriting Web technology as the front end.

The ODBC implementation gives both products access to a wide range of databases. Both ship with ODBC drivers for several common database programs, including Microsoft Corp.'s Access, Excel, FoxPro, and SQL Server; Borland International Inc.'s dBase and Paradox; and Oracle Corp.'s Oracle7. And you can order ODBC drivers for other databases from third-party vendors.

However, despite the promise of the technology, both packages have some distance to go — mostly in the area of documentation — before they will be palatable to a wide spectrum of Web developers. Both require familiarity with SQL and database design, and only Cold Fusion attempts to explain these mysteries to the uninitiated. Neither reference guide is indexed, although Allaire has published an index on its Web site and will be including it in future printings of the product's manual.



SIMPLE WEB-BASED *data entry or query forms aren't difficult to create with Cold Fusion.*

THE BOTTOM LINE

Cold Fusion Professional 1.5

HOT / COLD

Cold Fusion integrates HTML forms with ODBC-compliant databases, enabling a Web site to serve as a database front end.

Pros: Easy to learn; well-written documentation.

Cons: Few graphical tools for creating and maintaining data forms; security features could be improved; unresponsive support line.

Allaire Corp., *Minneapolis; (612) 831-1808; fax: (612) 830-1090; info@allaire .com; http://www.allaire.com.*

Price: *$495*

Platforms: *Windows 95 and Windows NT (Intel platforms only).*

How Cold Fusion and WebDBC deliver data to the Web

When setting up Cold Fusion or WebDBC, the site administrator creates HTML-based forms and templates. Cold Fusion and WebDBC use these templates to generate SQL queries and to format the results as an HTML page.

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Testing the waters

For Web developers with only limited experience with SQL, databases, or both, Cold Fusion is definitely the kinder and gentler product. However, even though simple tasks don't require complicated SQL syntax, you will at least have to get your feet wet. The more you know about SQL (or are willing to learn — Cold Fusion's documentation will take you past the essentials), the more you'll achieve. The same goes for database experience: If you have none, you'll be able to get past the basics. But the more time you've spent creating, maintaining, and querying database tables, the easier it will be to breeze past such routine functions as ODBC administration, and the easier it will be to take advantage of Cold Fusion's advanced features.

To begin, you use HTML to design a data input or query form similar to one you might create with a product such as Microsoft Access. Input forms can include check boxes, radio buttons, and drop-down lists, as well as code for validating user input. You then create a template that interacts with the form, sending SQL statements to the database and formatting the returned data.

The product's documentation recommends that you use an HTML editor to create your forms. You can then edit the raw HTML code to integrate it with the accompanying template files and the fields in your database table.

On the Web, a user views the first form with a Web browser and makes selections or entries, then views the results in the template. You can skip the first half of this process by simply calling up a template file with a hyperlink, effectively hard-coding a query.

THE BOTTOM LINE

WebDBC 2.5

HOT / COLD

WebDBC integrates HTML forms with ODBC-compliant databases, but it can be difficult to master.

Pros: Robust security; powerful design options; versatile configuration utility.

Cons: Variable performance depending on Web server; documentation only a programmer could love; poor installation routine.

Nomad Development Corp., Seattle; (206) 812-0177; fax: (206) 812-0170; http://web.ndev.com.

Price: *Single-seat developer license is free; $595 for single-server license.*

Platforms: *Windows NT, Windows 95, Macintosh, and Sun Solaris.*

Results pages can be static, text-oriented pages that return simple messages and data in a list format, or more dynamic forms with specific table and number formatting. You can also group returned records, as you would in a typical database report writer, and store HTTP cookies in order to facilitate

▸ WEB DATA *page IW/3*

▸Web and CD-ROM server

CD-ROM appliance spins discs, Web sites with ease

By David Strom

WHAT IF I could bring a box into your network room and have it set up as a Web server in less than 1 minute, without any knowledge of what a Web server is or does? You don't think it is possible? Then take a look at the new TopSpin 100, from Compact Devices Inc.

TopSpin is about the size of a small paperback book and is truly plug and play. It comes with connectors for Ethernet and SCSI ports, but the real treat is the barebones Web server that's part of the product's firmware.

But there is a catch: You'll need to buy a separate SCSI CD-ROM drive and attach it to TopSpin, then store your Web pages on a CD-ROM in this drive.

TopSpin is the ultimate in a secure server: No one can erase or otherwise alter your Web pages because the CD-ROM is read-only.

It has great potential for intranet applications, such as serving up a public archive of documents or

THE BOTTOM LINE

TopSpin 100

BUY

TopSpin is the smallest, easiest-to-set-up CD-ROM and Web server around.

Pros: Plug and play; can be configured via Telnet, Web browser, Windows software, or attached terminal.

Cons: Insufficient documentation; calls to technical support required to get all features working.

CHILL

Compact Devices Inc., *Campbell, Calif.; (800) 894-0519, (408) 255-4200; fax: (408) 253-4200; http://www.devices.com.*
Price: *$795 suggested retail.*
Platforms: *Windows 3.1 and Windows 95 administration software included (can be administered via any Web browser).*

corporate policy manuals, because you have the ultimate control over changing content; you merely replace the CD-ROM to update. Granted, the kind of application that lends itself to this Web server is somewhat limited. TopSpin merely dishes up files for others to browse.

TopSpin also functions well as a network-attached CD-ROM server, similar to Micro-Test Inc.'s DiscPort. TopSpin is less than one-third of the price of DiscPort, but DiscPort provides more features.

There is a dizzying array of choices for administering a TopSpin server. You can attach a terminal to the communications port on the front and type commands directly into the box, or you can Telnet to the box and type the same commands. You can perform further administration from your Web browser. Finally, you can use TopSpin's Windows tools from any client PC on your network.

SMALL IS BEAUTIFUL: *TopSpin 100 is a tiny but versatile Web and CD-ROM server.*

There are a few drawbacks to TopSpin. One is its documentation. Given the tremendous administrative flexibility, it is hard to figure out some critical commands. I had difficulty setting up network file system (NFS) file mounts. After several calls to technical support, I found out that the version of TopSpin 1 had does not actually support the complete NFS specification. As a result, I was unable to connect to TopSpin using InterCon Systems Corp.'s NFS/Share on a Macintosh.

I also had trouble connecting to a shared CD-ROM via a Windows 95 machine running Novell Inc.'s IPX stack. Another call to technicians revealed that the way TopSpin does its automatic detection of frame types is somewhat flawed. Once I reset TopSpin to handle the proper IPX frame type, I could connect to the server via Microsoft Corp.'s NetWare client for Win95, but Novell's client remained unworkable.

Overall, TopSpin is an impressive box that does just a few things, but it does them well and is almost simple enough to be a Web server for the rest of us. With a bundled CD recorder, TopSpin would be perfect.

David Strom's Web Informant is a Web-based newsletter geared toward marketing and Internet issues. It can be found at http://www.strom.com.

▸Web and BBS server

Wildcat 5 marries bulletin board, intranet features

By Mary Madden

MUSTANG SOFTWARE INC.'S Wildcat 5 was designed to work with Windows 95 or Windows NT as a BBS system, an Internet Web server, or as an intranet server. This product is especially useful to organizations that currently host a BBS and want to allow access to it across the Internet.

Wildcat 5 is also useful to organizations looking for a way to provide their intranets with BBS-like features, such as threaded messaging, file library services, and chats.

If customers or employees prefer to dial in to your system directly, using a basic communications package, they can do so. However, if they prefer to access the information via the Internet, they can use Mustang's Navigator Web browser or download Mustang's browser-independent helper application. They can even access the system via a LAN or WAN.

Because Wildcat 5 functions as a standard Web server, you can use any browser to connect to it. But you won't get the messaging, file library, and chat features unless you have the client software.

The optional $249 Internet Connectivity Package contains Telnet, HTTP, FTP (File Transfer Protocol), and Unix-to-Unix copy protocol (UUCP) Mail, which will enhance your BBS server's Internet and intranet functionality and allow access to your BBS via the Internet.

Installing Wildcat 5 isn't for the faint of heart. It includes a wealth of configuration options and features, and it may take you awhile to sort through them all.

The documentation is somewhat helpful, but it doesn't explain clearly how to connect the BBS shell and NT 3.51 Server to the Internet. However, Mustang's technical support line can provide help if you need it.

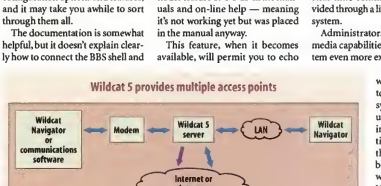
It was disconcerting to find after setting up the server that the README file instructs users to ignore any references to the downline nodes feature of UUCP in the manuals and on-line help — meaning it's not working yet but was placed in the manual anyway.

This feature, when it becomes available, will permit you to echo newsgroups, mailing lists, and e-mail to other sites.

The software provides some powerful capabilities once you get it configured properly. The threaded messaging feature is modeled after popular forum systems, such as CompuServe and America Online. Real-time communication is provided through a live, text-based chat system.

Administrators can add multimedia capabilities to make the system even more exciting.

The client software allows users to access the BBS system via a dial-up, Internet, or intranet connection. Users can use the Wildcat 5 Web browser that comes with the Wildcat Navigator set of Windows client applications, or they can opt to download the browser-independent module from Mustang's site. This module is a helper application that works with Netscape Communication Corp.'s Navigator or Microsoft Corp.'s Internet Explorer. However, we had a little trouble getting it configured.



With the Wildcat Navigator client, users can access bulletin-board-style features such as forums and chat via direct dial, over the Internet, or through a LAN or WAN. Wildcat 5 also functions as a standard Web server.

THE BOTTOM LINE

Wildcat 5

BUY

Wildcat 5, plus the Internet Connectivity Package, is well-suited for organizations that want to provide BBS capabilities via dial-up, Internet, or intranet connection.

Pros: Easy to install; many features, including public and private conferencing, threaded messaging, individual and group chats, and file libraries.

Cons: E-mail and newsgroup support limited to Unix-to-Unix copy protocol feeds (SMTP, POP3 mail, and Network News Transfer Protocol newsgroups not supported); security and Internet connectivity not explained well.

CHILL

Mustang Software Inc., *Bakersfield, Calif.; (800) 999-9619, (805) 873-2500; fax: (805) 873-2599; sales@mustang.com; http://www.mustang.com.*
Price: *$149 for two simultaneous connections, $349 for 16 simultaneous connections. Internet Connectivity Package: $249.*
Platforms: *Wildcat Server and Internet Connectivity Package: Windows 95 or Windows NT 3.51. Client: Windows 3.1 or later.*

Mary Madden (mtm@comland.com) is an associate at LAN-Wrights, a networking consultancy in Austin, Texas.

▸Internet database reporting tool

Crystal Reports adds HTML output capability

■ Add-on tool creates various browser-formatted views at the click of a button

By Paul Ferrill

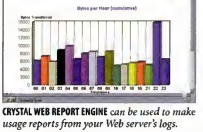
BETA

As more and more companies develop intranets, the need to publish database reports as HTML pages becomes greater. Now you can do just that with the Web reporting add-on for the 32-bit version of Crystal Reports, Crystal Web Report Engine, from Crystal, a Seagate Software company. This add-on, which is still in beta testing, is currently available free on Seagate's Web site. You must have Version 4.5 of Crystal Reports to use the Web report engine. Most of the Web Report components will be included in Crystal Reports 5.0, due in June.

The update is a 5.5MB executable file, so it took me awhile to download it. After I accomplished that feat, the installation was a snap.

Once I had the software loaded, it was really easy to generate a report and save the result as an HTML page. Three new options appear when you click Crystal's export report button, including HTML 3.0, Microsoft Corp.'s Internet Explorer 2.0, or Netscape Communications Corp.'s Navigator 2.0, allowing you to create Web pages in whichever flavor of HTML you prefer. The resulting output consists of one or many HTML files, depending on the complexity of the report. The Web report engine saves graphical objects as .GIF files.

Another new feature with this add-on is the capability of reporting on Web server logs that conform to the NCSA standard format. Most of the popular Web servers use this format, including those from Netscape and Microsoft. Standard reports include bytes per minute or hour; requests per second, minute, or hour; and top 40 files requested. The only hitch with the current release is that you can't run these reports on the fly. They must be generated using the Crystal Reports program and saved to the server. Seagate plans to offer a dynamic reporting capability in an update.



CRYSTAL WEB REPORT ENGINE *can be used to make usage reports from your Web server's logs.*

Seagate has another product called Crystal Info that offers scheduled reporting. The Web reporting engine also works with this product to periodically refresh data on a Web page with current data.

Seagate has recently released Crystal's 101 Reports for Back Office. This CD-ROM contains 101 different reports that show detailed information about the different Microsoft Back Office components, including the Internet Information Server. With these reports and the Crystal Info product, you could easily set up an HTML-based server monitoring system that could be viewed from any browser on your network.

If you're looking for a way to publish your data on a Web server and are already using Crystal Reports, the Web report engine may be just the thing you've been looking for.

Paul Ferrill is an associate principal engineer at Sverdrup Technology. His Internet address is paul_ferrill@infoworld.com.

THE BOTTOM LINE

Crystal Web Report Engine

Crystal Reports adds HTML output to its list of capabilities and can even generate Web server usage reports.
Pros: Easy way to publish database reports as HTML pages.
Cons: No dynamic Web page creation; server usage reports not generated on the fly.

Crystal, a Seagate Software company, *Vancouver, British Columbia; (800) 877-2340, (604) 681-3435; fax: (604) 681-2934; http://www.seagate.com/software/crystal/.*
Price: *Not yet determined.*
Platform: *Windows 95 or Windows NT.*

Web data

Continued from page IW/1

browser/server communication.

Cold Fusion's 105-page users' guide employs a tutorial format to lead the novice gently through these procedures, with just enough technical information (including a two-page crash course on SQL basics) to clarify the process without getting bogged down in details. There are, however, a few skimpy areas in the manual that may unsettle users with minimal database experience.

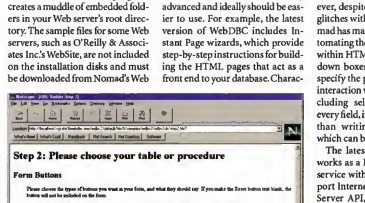
Those who get stuck may find answers in one of the several on-line examples, which are also generally explained clearly. For insurmountable roadblocks, Allaire suggests you visit its Web site, but a search of the site's knowledge base did not provide a complete answer to a fairly simple question about setting up links to an Excel table. And Allaire's technical support is poor: A phone message left with its product support staff was never answered.

Experience required

Web developers lacking substantial experience in database management need not consider the current version of WebDBC. Its documentation hurtles from one technical topic to the next at a breathtaking pace. It assumes a solid working knowledge of database administration and SQL. (A modicum of programming experience wouldn't hurt, and a touch of mental telepathy might also come in handy.)

WebDBC's installation program creates a muddle of embedded folders in your Web server's root directory. The sample files for some Web servers, such as O'Reilly & Associates Inc.'s WebSite, are not included on the installation disks and must be downloaded from Nomad's Web site. Inexplicably, you must run a separate .EXE file to install the sample files. Specify the wrong directory and everything grinds to a halt because all the path references in the samples are hard-coded.

In short, nothing about learning to use WebDBC is easy. This is unfortunate, because although WebDBC uses the same basic paradigm of HTML forms and templates as Cold Fusion, it is more technically advanced and ideally should be easier to use. For example, the latest version of WebDBC includes Instant Page wizards, which provide step-by-step instructions for building the HTML pages that act as a front end to your database. Characteristically, this exciting aspect of the product gets only a brief mention in a lengthy addendum to the documentation, and the wizards themselves are stuck in among the sample files.



WEBDBC'S *HTML-based Instant Page wizards generate forms for accessing database tables and returning query results as HTML.*

The wizards take the form of bulky HTML pages rather than the svelte series of dialog boxes that most desktop users are accustomed to, and the query forms they generate are not a thing of beauty. However, despite these flaws and a few glitches with the query results, Nomad has made some progress in automating the coding of SQL queries within HTML forms. You use dropdown boxes and radio buttons to specify the parameters of the user's interaction with the database — including selection conditions on every field, if you so desire — rather than writing the code yourself, which can be a real time-saver.

The latest version of WebDBC works as a DLL or a Windows NT service with Web servers that support Internet Server API, Network Server API, or Spry Inc.'s Binary Gateway Interface. (Servers on this list currently include Netscape Communications Corp.'s servers, Process Software Corp.'s Purveyor, Microsoft's Internet Information Server, and Spry's SafetyWeb.) Running WebDBC this way yields faster performance than is possible through the CGI architecture of earlier versions. (CGI support is still available for other servers.)

WebDBC's security features are also more robust than those of Cold Fusion. One of the tabs in the WebDBC configuration dialog box allows the administrator to assign one of six security levels for each user. The administrator can then use another tab in the dialog box to specify a security level for each table, ensuring that tables are accessed only by users with the proper clearance.

Other WebDBC features are similar to those found in Cold Fusion. You can validate user input, group result records, and store HTTP cookies. Database operations can be invoked via a URL link as well as through an HTML form.

Template files can process multiple SQL commands for multiple databases, even performing user authentication one database at a time if you want. The documentation includes the syntax required for advanced template coding such as if...then...else... statements.

Nomad's Web site does include a helpful discussion of HTML form design concepts. In addition, Nomad's support staff was easily accessible by telephone and obligingly volunteered to publish or send additional information via e-mail to answer specific questions.

But WebDBC, whose form-generating wizards seemingly place it on the threshold of a breakthrough in this product category, is still clearly for people with extensive programming experience, whereas Cold Fusion sacrifices power for ease of use. With a few relatively minor improvements, either product could quickly become a powerhouse in this category — and a killer application for companies looking for a quick way to establish a substantive, data-rich presence on the Web.

Kelly Conatser is an independent consultant and author who lives in Kenner, La. His Internet address is kelly_conatser@infoworld.com.

INSIDE THE FIREWALL · DAVE TAYLOR

Form or content? How intranets set information free

COMPOSER PHILLIP GLASS has spent his entire life exploring the silent space between the notes, and any neophyte on Madison Avenue can tell you that what you don't say in your advertisement is just as vital as what you do say. In that spirit, the recent Internet World trade show, in San Jose, Calif., was an interesting event.

Completely missing from this busy show was any kind of on-line content. There were lots of tool providers, a gross of specialized applications, and even a rather large smattering of access providers, but there wasn't any content. No "101 Canned Articles for your Web Site," no news wire services offering a simple way to have hot industry news automatically updated on your site. There wasn't even a single company highlighting the value of the information on its site. (On-line directory sites don't offer actual information, either; they're all links with no content.)

In a lot of ways, I think that's symptomatic for what ails the Internet itself today: lots of form — links, pictures, resumes, chitchat — but precious little valuable content. The Internet has always been a medium for communication, and the transition from participatory system to passive publishing, as represented by the World Wide Web, is something entirely new — a massive change that isn't fully understood. A simple experiment: Ask a half-dozen colleagues which they'd miss more, e-mail or the Web.

Reams of digital information are valuable, and the completely egalitarian nature of the Web is terrific — but only when you can easily differentiate between the amateur and the professional, ascertaining instantly the quality and veracity of the information you are reading. Think about the implications for children doing homework on-line, for example. Sure they can do research on the Internet, but how can kids become sufficiently sophisticated to discern subtle biases, hidden agendas, or modifications to historical events?

Competitive advantages

Intranets come from exactly the opposite heritage. Historically, corporations have had a veritable treasure chest of useful and important information locked behind the walls of the data processing center. Gigabytes of useful trend analysis and sales figures are hidden in confusing and inaccessible mainframes. Thousands of invaluable documents languish on individual PCs, with the hard copy relegated to dusty binders.

The evolution of computer networking is the technological story of the liberation of information within organizations — that's why intranets are so exciting, and it's why they have such potential to reverse the all-form-no-content trend of the Web. Intranets are all about content seeking form.

Consider all the information your company has available electronically and how it could help you understand the strengths and weaknesses of your products and product line and even anticipate the size of your profit-sharing check. Make all that information available to everyone in the corporation, using the easy technologies of the Internet, and you've just empowered everyone. You've created a better, more competitive work force.

Now imagine melding the information in thousands of intranets with the accessibility and technology of the Internet, and something magical can happen. We really can create a new world, a space where there is copious knowledge that's easy for everyone to find and use. This is part of the promise intranets provide, and, after years of looking for good content on the Internet, I say that it's about time.

Dave Taylor is president of interface design company Intuitive Systems, offering a variety of on-line content at http://www.intuitive.com/. Dave can be reached at taylor@intuitive.com.

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SHIPPING

Cisco Systems Inc. last week shipped modem-size Ethernet-to-ISDN routers that allow users to simultaneously access the Internet and use a phone or fax machine on a single ISDN Basic Rate Interface connection, eliminating the need for multiple phone lines. The Cisco 765 and 766 and CiscoPro 765 and 766 can be configured using a Touch-Tone phone and are priced from $1,299. (408) 526-4000; http://www.cisco.com.

DAYNA COMMUNICATIONS INC. this week will ship a single-port bridge that lets users connect 10Base-T–only devices, such as printers, to 100Base-T Ethernet networks. The Fast EtherPrint has an estimated street price of $475. (801) 269-7200; http://www.dayna.com.

ANNOUNCED

STAC ELECTRONICS INC. has announced Version 2.1 of its Replica backup and replacement software for Novell Inc.'s NetWare, which will feature support for NetWare Web Server and Novell Directory Services. Directory support provides secure authentication and multiple directory-tree log-ins for administrators. The product will also feature advanced auto-loader support for Windows-based administration. Replica 2.1 will ship May 31 and cost $995. (800) 522-7822.

SYNTAX INC. has unveiled TotalNet Internet Gateway (INETgateway), which will enable NetWare users to access the Internet through a World Wide Web server without having a TCP/IP stack on each desktop. The product will leverage a user's IBM AIX or SunSoft Solaris Web server by enabling it to receive IPX/SPX requests without configuring IP addresses. INETgateway will be available June 15. Pricing will range from $135 for each client when purchasing one to five client connections to $45 per client when purchasing 251 to 500 client connections. (206) 838-2626.

US West to offer Lotus Notes services

■ The Colorado phone company is also looking at Microsoft Exchange Server

By Jessica Davis

US WEST Communications Group plans to roll out a public Lotus Development Corp. Notes network service, allowing users to outsource business applications to the phone company.

US West is also testing Microsoft Corp.'s Exchange Server in its labs and plans to go to pilot with Exchange as an e-mail service in July.

Interact for Lotus Notes will become a component in the company's Interact suite, which now includes Internet connection services and Web hosting services. US West will host these applications on its own server farm.

The Lotus component of the suite fulfills the promise of collaborative computing service that the Englewood, Colo.–based company made when it announced the Interact suite, out of the Enterprise Networking Services division, in October. US West said it would base the suite around four areas: Internet connectivity, a Market and Commerce Service, Collaborative Computing Services, and Transaction Computing Services.

"Customers were looking for a collaborative computing service," said Teresa Taylor, marketing director for Interact for Lotus Notes. "Customers needed to improve their business processes and collaborate within the company, so we looked at who was the leader in that business and started with Lotus."

Lotus' investment in a carrier-grade version of Lotus Notes played a big part in US West's decision to go with Notes first, Taylor said. AT&T and Lotus had both contributed heavily to development of that version of Notes. However, because its Notes service was not connected to its Internet services, AT&T dropped the AT&T Network Notes service in February. AT&T and Lotus are currently working together on an Internet/Notes service.

US West plans to take its new Notes service from the pilot phase, with 14 participants, to commercial release in mid-June. Although US West is already filling the consulting role with prospective clients, the telecommunications company is also bringing in Lotus Business Partners for custom applications.

US West is working with other big software vendors to offer their collaborative computing solutions over the network. Likely candidates are future upgrades of Microsoft Exchange, Netscape Communications Corp.'s intranet solutions, and Novell Inc.'s GroupWise.

US West in October 1995 had announced partnership agreements with Lotus, Netscape, Microsoft, and Cisco Systems Inc.

Interact for Lotus Notes will be available for a setup fee of $1,500 to $3,000, depending upon the size of applications and whether the company wants application hosting and server hosting. In addition, US West will charge a monthly fee of $23 to $28 per user. Lower prices per user are for those sites that choose centralized billing.

US West is at (800) 672-8520.

Fore Systems brings low-cost 25Mbps desktop ATM

By Stephen Lawson

FORE SYSTEMS INC. this week will ship a complete low-cost 25Mbps desktop Asynchronous Transfer Mode (ATM) solution.

The ATM package will be priced at $598, which includes a PCI adapter, a switch port, and management software.

The hardware offerings include the ForeRunner 25Mbps ATM switch, 25Mbps modules for Fore's existing ATM switches, and the ForeRunnerLE 25Mbps ATM adapter card.

"This is one of the more complete 25Mbps ATM solutions in terms of software and integration with the rest of the switching they have in place," said Trudy Barker, an analyst at Dataquest Inc., in San Jose, Calif.

The 25Mbps adapter supports Fore's ForeThought software and works with a variety of platforms, including Microsoft Corp.'s Windows 95 and Windows NT, IBM's OS/2 Warp Connect, Novell Inc.'s NetWare, and the Open Transport protocol for Apple Computer Inc.'s Macintoshes.

Bill Covington, director of technology at Laser Tech Color Inc., a graphic imaging company in Irving, Texas, has been using 155Mbps ATM connections between servers and high-end workstations for the past year.

Covington plans to use the 25Mbps products to provide his company's Macintoshes with a smoother, faster on-ramp to the ATM network where it transfers 50MB to 100MB files.

Also this week, Fore will introduce a 155Mbps PCI adapter, the ForeRunnerLE 155, priced at $495 for unshielded twisted-pair connections.

Fore is in Warrendale, Pa., at (412) 772-6600 or http://www.fore.com.

HOT SEAT *Richard C. Notebart, CEO of Ameritech Corp., discusses telecommunication's future as Big Brother backs off*

SINCE telecommunications reform became a reality in February this year, there has been much speculation on the new types of services customers can expect. *InfoWorld*'s Mark Leon recently spoke with Richard C. Notebart, CEO of Ameritech Corp., the Regional Bell Operating Co. servicing the Midwest, about future plans for data network offerings.

What are your goals in the new era of deregulation?

We plan to grow our telecom business, offering more voice and data services. This will involve redefining our product line in both content and application.

What about LAN and WAN data services?

We have about 50 broadband switches now for ATM [Asynchronous Transfer Mode] and frame relay, and we recently deployed Sonet Express [a fiber-optic service].

What will this mean to IS managers?

Lots of corporations want to buy Sonet Rings. Medium-size companies can't afford to manage them, and we plan to structure the pricing so that they can share the expense with other companies.

What are your plans for ISDN?

Eighty percent of our customers have ISDN access through local switching stations today.

How about Internet services?

We will be providing our own Web site by the end of the year.

Aren't you facing competition from private companies targeting lucrative metro markets?

In telecommunications, we have always done things in an evolutionary way, which is why Sonet Rings

▸ **HOT SEAT** *page 56*

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RightFax combines voice, fax, e-mail into single interface

By Jessica Davis

USERS GOT ANOTHER PATH toward a universal inbox with the announcement of RightFax Inc.'s next generation of RightFax Server, which features integration with the voice-processing products of its new parent company, Applied Voice Technology Inc. (AVT).

AVT, in Kirkland, Wash., acquired RightFax, in Tucson, Ariz., in January.

RightFax Server, Version 4.50, now integrates voice, fax, and e-mail into AVT's single-user interface, CallXpress3, either at the desktop or on the telephone. CallXpress3 is a telephony server that hosts unified messaging, call management, and interactive voice-response applications.

The product has expanded client platforms and the applications it supports, and can now interconnect more than one fax server, according to Andrew Johnson, an analyst with Giga Information Group.

Version 4.50 now supports NetWare clients, offers multiple protocol support, and features native e-mail API connectivity for better integration with popular packages such as Lotus Development Corp.'s Notes and cc:Mail, Microsoft Corp.'s Mail and Exchange, and Novell Inc.'s GroupWise.

USERS CAN *select standard faxes from the document library.*

RightFax Server is available now. The Windows NT version with unlimited user licenses costs $1,495 for a one-port, software-only kit and $795 for each additional port. The OS/2 Warp version costs $995 for a one-port, software-only kit and $795 for each additional port. An upgrade from OS/2 to Windows NT costs $995, and an upgrade from the NT Version 4.0 to NT Version 4.50 costs $595.

RightFax can be reached at (520) 327-1357.

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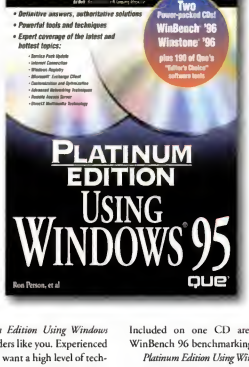

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Hot Seat

Continued from page 53

and ATM switching are only available in high-density markets today. It will be some time before the low-density markets get those services.

What about the new data technologies?
ISDN will increase by 300 percent this year. We are also laying 80,000 new miles of fiber over the next year. The growth of frame relay and ATM is a market question.

Any other data networking plans?
We are planning a joint venture with IBM. It's desktop outsourcing. IBM will do the LAN management, and we provide the telephone service. Voice and data integration will be a part of that package.

When do you plan to offer long-distance service?
We hope to have long-distance service by March 1997. There are some big regulatory issues here. We have to get to an open, level playing field — a real free market — and then this business will explode.

Wasn't deregulation supposed to free the market?
It's not a free market now. Imagine we are a McDonald's or a Burger King. You want to get into the hamburger business, and a new law says that we have to let you use our parking lot and kitchen.

I assume you are talking about local access, the final mile. Doesn't the law say you are entitled to recover the cost?
Yes, but how much does a MIPS [million instructions per second] cost? These things still have to be worked out, and the law doesn't require the cable companies and long-distance carriers to reciprocate with equal access.

Ascend elevates routers and switches

By Stephen Lawson

TWO RECENT product introductions by Ascend Communications Corp. offer users more flexibility in configuration and deployment of the company's remote-access products.

Last week Ascend updated its Max product family with three WAN access switches. The new Max central office switches allow companies to link a broad range of different connections into a LAN.

The updated Max 2000, 4002, and 4004 switches can support as many as 96 simultaneous sessions using Ascend's Hybrid Access capability, which allows analog modem, ISDN, and frame-relay traffic to run over the same high-speed trunk line.

"Ascend has built the Max-killer," said Michael Howard, president of Infonetics Research Inc., in San Jose, Calif. Other vendors were rumored to be preparing products that would beat Ascend's port density, he said.

Ascend updates its routers and switches

Product	Base price
Remote-access routers	
Pipeline 25-Fx	$595
Pipeline 25-Px	$695
Pipeline 75	$1,450
Central office switches	
Max 2000	$6,500
Max 4002	$11,000
Max 4004	$15,500
Digital Modem Module	$6,250

Hybrid Access has been a standard feature on Ascend products and comes with the new 2000. Buyers of the 4002 and 4004 can choose it as an option for either 64 or 96 connections.

Robert Berger, founder of InterNex Information Services Inc., an Internet services company in Santa Clara, Calif., was impressed with the new Max products.

"We've been using the Maxes since the end of 1993, and it's good to see that there's a lot of new options," Berger said.

To its Pipeline product line for remote users, the company has added Pipeline 25-Px, a remote office router that can connect as many as four devices to a corporate backbone or the Internet through an ISDN Basic Rate Interface connection. The Pipeline 25-Px is a single-user, single-connection device for ISDN access to the Internet or a central office.

Ascend also introduced the Pipeline 75, which combines the features of its existing Pipeline 50 and Pipeline 25. The 75 offers unlimited simultaneous LAN access to the Internet and other locations, integrated analog and digital capabilities, and multiprotocol routing. It is manageable via SNMP and supports data compression technology as well as security features from Stac Electronics Inc.

"The new low-end Pipeline 25s have lowered the barrier for router-type products for single users," Berger said.

Ascend also introduced last week a high-density digital modem card that plugs in to expansion slots on all new Max switches. Each card provides connections for 12 digital or analog modems and supports common modem standards, including V.34 and V.42bis.

The Pipeline 25-Fx carries an entry-level price of $595; the 25-Px costs from $695. The 75 has a base price of $1,450.

The Max 2000, with one T1 connection, costs $6,500. The 4002 comes with two T1 connections and can be upgraded in the field to four connections; it costs from $11,000. The 4004, with four T1 connections, has a base price of $15,500. All the products are available now.

Ascend can be reached in Alameda, Calif., at (510) 769-6001 and http://www.ascend.com.

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Insignia to give Unix clients, servers Windows integration

By Mark Leon

THE LAST BASTION of Unix networking will get a Windows feel with a new customized version of Microsoft Corp.'s Windows NT server from Insignia Solutions Inc.

Insignia's Ntrigue, Version 2.0, is a superset of Windows NT 3.51 that will extend its support for Unix clients. Features include faster networking, tighter Windows-Unix integration, and greater effectiveness pulling Unix user information into NT Domain Services.

Analysts said these kinds of NT extensions are inevitable.

"You get Windows applications and the look and feel of Windows on non-Windows devices," said Greg Blatnik, vice president of Zona Research Inc., in Redwood City, Calif.

To boost network performance, Insignia tweaked Ntrigue's X-driver, which translates Windows screens into the X-protocol for transmission across the wire to Unix clients running X Windows.

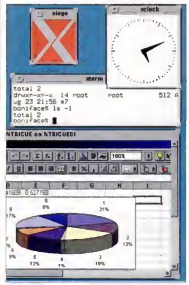
"We improved the way the X-protocol sends fonts over the wire," said Peter Crosby, product manager for Ntrigue. "Users can get even better performance by limiting the number of fonts available for specific applications."

Insignia also added extensions to the Unix remote shell that will enable Ntrigue to initiate Windows applications. Unix administrators will be able to use this feature to construct X Windows icons that launch Windows applications running on the Ntrigue server.

Another new Windows-Unix integration feature will allow users to cut and paste graphics between Windows and Unix applications. Previous versions only supported bidirectional cutting and pasting of text.

Users said this will be particularly useful.

"We run our technical publications system on a Unix network, and we use Ntrigue to talk to NT," said David Anderson, a network analyst for International Game Technologies, a manufacturer of gaming machines in Reno, Nev. "I would very much like to see bidirectional cut-and-paste for graphics."



NTRIGUE *delivers Windows applications to heterogeneous desktops.*

Systems managers will be able to import Unix Network Information Services data into NT Domain Services with the new release.

"The core here is the ability to get Unix user account information into NT without having to enter it all by hand," Crosby said.

Because Ntrigue makes Windows applications available to most clients on a heterogeneous network, users will also be able to get access to communications software such as Web browsers and e-mail servers.

"Some of our customers are using it to run Java applets without having to install a Java Virtual Machine at the desktop," Crosby said.

Ntrigue also gives users of older and slower PCs a way to run 32-bit Windows applications as remote X-clients.

Ntrigue will be available by month's end and will cost $1,995.

Insignia can be reached in Santa Clara, Calif., at (800) 848-7677.

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— Linda Lloyd, FileMaker Pro user, Schlumberger Ltd.

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— PC Computing, 4/96

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▸ Desktop management software

Intel's LANDesk extends its reach to the enterprise

■ Version 2.5 includes capability to manage WANs, also supports NT servers

By Lisa L. Sweet

ADMINISTRATORS with mixed network environments looking for a desktop management package that does everything from inventorying hardware and software to monitoring network traffic will want to take a look at Intel Corp's LANDesk Management Suite 2.5.

In addition to supporting NetWare 3.x and 4.1 servers, Version 2.5 now supports Windows NT networks.

And LANDesk's most important new feature is the capability to manage WAN environments — from low or infrequent links (for example, small branch offices) to busy multiple-site WANs — from a central console. This feature also lets administrators manage TCP/IP-addressed workstations over the Internet.

Unlike other desktop management packages, LANDesk was simplest to install, albeit time-consuming. Everything I needed was on one CD-ROM.

For example, while installing the management console and server portions of the software from my Windows for Workgroups workstation, LANDesk informed me that I didn't have the most current Windows files for NetWare and that I also needed to upgrade Btrieve. Usually, this would stop me in my tracks, rounding up the various versions of files and programs.

What's new in LANDesk Management Suite 2.5

- Support for Windows 95
- Remotely control and inventory software and hardware over WinSock IP for Windows 3.x, Windows 95
- Macro local applications and DLLs
- Monitor Windows NT servers
- Inventory Windows NT workstations and servers
- Discover and view NT domains in the Network View
- Map DMI indications to AMS alerts
- Distribute stand-alone software packages via e-mail, floppy disk
- Support for WAN environments

However, Intel not only provided the WINUP9 program on the LANDesk CD-ROM but also provided two versions of Btrieve — Version 6.10 for my Windows for Workgroups management console and a one-user license of Version 6.15 for my Windows 95 console.

In addition, LANDesk's installation made all the necessary changes to my management console's AUTOEXEC.BAT and WIN.INI files. The program also changed my system log-in and AUTOEXEC.NCF files on my NetWare 3.12 server so that the appropriate NetWare Loadable Modules were loaded.

Furthermore, LANDesk's installation automatically created NetWare user groups.

I could then manually add users to these groups, so the next time users logged in to their systems, LANDesk loaded the pertinent files needed for use with components such as inventory.

From LANDesk's Management Console, I could launch any one of the provided modules, which include the Desktop Management Interface (DMI) Control Panel, software distribution, software metering, hardware and software inventory, remote control, printer manager, server monitor, server status, traffic monitor, virus scan, performance monitor, queue monitor, alert manager, and report tool.

The only component LANDesk 2.5 doesn't provide is an integrated help-desk module. For that, Intel offers LANDesk Response, a troubleticketing package that costs $995 per server.

A wealth of information

The hardware inventory feature provided accurate information for each of my workstations, such as CPU type, video adapter, BIOS date, operating system version, shell version, and memory (including conventional, expanded, and extended).

In addition, the module reported COM and LPT port addresses.

There's also a memory map function that depicts the file name, byte size, and other information for diagnosing possible conflicts between TSR programs.

I also could check to see if a specific workstation had an active network connection or view packet statistics to detect total packets sent, received, and rejected.

From the DMI Control Panel, I could view information such as serial number, model number, I/O port, interrupt, and Direct Memory Access for DMI-enabled devices.

In addition, you now can forward DMI alarms from the Control Panel to the Alert Management System (AMS), where you can take an appropriate action such as logging the error.

I was equally impressed with LANDesk's software-specific modules, including inventory, metering, and distribution. Using Version 2.5, I collected a thorough inventory of the software residing on all my workstations' hard drives.

I encountered one drawback, though, with the software inventory function. If an application appeared twice, the inventory report showed this duplication. However, LANDesk couldn't indicate where the duplicate application was physically installed on the workstation hard drive.

Being able to detect the location of duplicate applications would make it easier to clean up additional or different versions of the same software.

I was able to edit the software list to include a variety of version numbers for the same application.

LANDesk's software metering worked extremely well. After adding the Intel Virus Scanner to the list of software to meter, I assigned a limit to the number of licensed copies available for use.

From here, I had a couple of options. I could deny usage to any workstation once the license limit had been reached. I could have the AMS send an alert, notifying me that the license limit for a specific package was reached.

Finally, I could assign privileges to specific users that would give them a higher priority in the waiting queue or allow a user to use the program regardless of whether the license limit had been reached.

LANDesk's software distribution module takes a snapshot of a workstation's hard drive both before and after software installation.

In addition, Version 2.5 offers both push and pull as well as standalone distribution methods.

I could schedule a software distribution time where the users had no choice but to accept the new package. Or I could give users the option of accepting the software at that time or putting off the installation until a better time, such as after work hours.

A log file created by the distribution module showed me which users had received or declined a given software package.

Unfortunately, LANDesk can only create software distribution packages for 16-bit applications. (Intel plans to add 32-bit application support in a future maintenance release.)

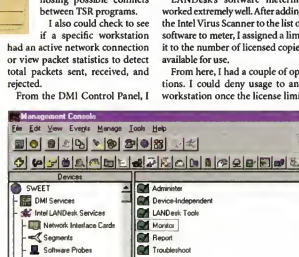
You also can't create distribution packages on Windows 95 management consoles.

Despite these limitations, though, LANDesk's distribution process worked like a charm. I was able to easily create a 16-bit software package on a Windows 3.x console and distribute it to a Windows 95 workstation.

Version 2.5's virus scanning program included an extensive list of up-to-date viruses, including the Word concept virus. To perform a DOS scan, I placed the WPROTECT .EXE file in my system log-in script.

By adding a software switch to the executable line, the program could delete, rename, or clean viruses from an infected file. (You can download free periodic updates to

▸ LANDESK *page N/2*



INTEL'S LANDESK MANAGEMENT SUITE 2.5 *provides a hierarchical design that makes it easy to maneuver around the product's features.*

THE BOTTOM LINE

LANDesk Management Suite 2.5

BUY

RENT

COIN

This solid, full-featured desktop management package is an even better solution, supporting both local and wide-area networks.

Pros: Competitive price; easy to use; complete selection of desktop management, alerting, and server monitoring modules; supports WAN environments; supports variety of client operating system platforms.

Cons: Lacks capability to distribute 32-bit Windows applications; distribution packages must be created on a Windows 3.x workstation; no remote control for Windows NT clients.

Intel Corp., Hillsboro, Ore.; (800) 538-3373, (503) 264-7354; fax: (800) 538-3019; http://www.intel.com.

Price: *$750 (five-user license), $1,000 (10-user license), $6,250 (100-user license), $50,000 (1,000-user license).*

Platforms: *Windows 3.x; Windows 95; Windows NT 3.51; OS/2 Warp 2.x, Warp; and NetWare 3.x, 4.1.*

THIS WEEK

■ SafE-Mail 1.12 .....N/2
■ Shiva LanRover/E Plus 4.0 .....N/4
■ LAN Talk, *by Paul Merenbloom*.....N/8

HOW WE REVIEW

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TALK BACK

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▸E-mail encryption software

SafE Mail 1.12 provides secure correspondence in Windows

■Don't forget your password; this application will deny access to unauthorized users

By Jeff Senna

SAFE MAIL CORP.'s SafE Mail 1.12 for Windows makes it easy to safeguard important documents against unauthorized access. The application converts any computer-generated file to an ASCII text Internet-compatible format using a proprietary encryption and decryption system.

By employing a public-key, private-key protocol combination upon installation, SafE Mail lets users completely secure documents directly from their desktops.

Using this scheme, I sent my public key to my correspondent, who in turn encrypted her message to me using my public key. I then decrypted the message with my private key.

Unfortunately, this approach makes it difficult to deploy SafE Mail on an enterprisewide basis. The program is designed to be installed and configured on a user-by-user basis, rather than from a centralized administrator.

SafE Mail makes you jump through several hoops to encrypt e-mail. You cannot encrypt e-mail messages directly from within your mail program. Instead, you must draft a text file, encrypt it, launch your e-mail program, and attach the encrypted file. (When you encrypt a file, the original copy remains on your machine in unencrypted form.)

I would have preferred tighter integration between my e-mail program and SafE Mail.

That issue aside, SafE Mail works smoothly, including its installation. You can install the software locally or on a network drive. You personalize the disk with your private and public keys, so you can encrypt or decrypt files on another machine, such as a laptop.

SafE Mail lets you use passwords with as many as 54 characters for the private key. Using its own proprietary Cryptosystem, SafEMail then generates a 22-character public key from the private key via a one-way hash function.

Without these components, it is virtually impossible to decipher an encrypted file generated by SafE Mail. In fact, if you forget your password, SafE Mail Corp. cannot decipher your messages.

You provide a user name (or alias) to reference your public key. SafE Mail contains this information in an editable text file, which also holds other SafE Mail users' public keys and their names (which are necessary for sending encrypted correspondence).

The single-user copy of SafE Mail limits you to encrypting and decrypting your own files.

With multiple copies, however, each user can repeat the setup process to personalize the disk and files.

SafE Mail employs a copy-protection scheme that makes it impossible to duplicate the software. I made the mistake of trying to make a working copy before installing the software, to guard against error. By doing so, I unwittingly corrupted the disk because I uncorked the copy protection.

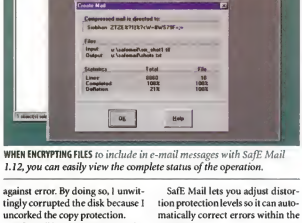
SafE Mail incorporates some nice touches that enhance its usability: For example, I can select Microsoft Corp.'s Word, Notepad, or WordPad to use as a text editor when creating new messages.

When encrypting files, I can select an output directory that allows automatic text strings to be appended to the beginning of each output file created.

This is especially helpful in identifying files that have been encrypted in SafE Mail's Universal Secure Envelope format.

Other niceties include compression, encryption, confirmation options, sorting, and the capability to set the length of time a password stays in memory — a particularly useful feature if other users have access to your system.

When sending or receiving encrypted mail over noisy lines, extraneous characters may be added to the text of the encrypted file.



WHEN ENCRYPTING FILES *to include in e-mail messages with SafE Mail 1.12, you can easily view the complete status of the operation.*

SafE Mail lets you adjust distortion protection levels so it can automatically correct errors within the message.

There is a trade-off, though: The higher the level of distortion protection, the lower the level of compression. I found that the default level offered an adequate amount of protection.

To prepare a document for encryption and decryption, you need to take several steps.

If you want to encrypt only your own local files, you supply your private key and your public key and set the recipient as yourself.

To mail the encrypted files, you must also have recipients' names and their 22-character public keys.

After setting these parameters, you can select a single file or multiple files from any directories and enter a file name in the output directory of your choice.

SafE Mail queues each file as you select it, regardless of its location. SafE Mail will let you encrypt a file more than once for added security, but it will compress the file during only the first encryption. Both encryption and decryption worked smoothly.

File compression helps enormously. My tests showed that SafE Mail provides varying degrees of compression depending on the types of files, as well as the quantity selected.

Because of the overhead of the encryption algorithm, the compression works best on large files. Some file types may increase in size.

In performance tests, a 1.4MB Word document required about 22 minutes to process, while 80 separate Word files totaling 1.4MB required only 2 minutes 17 seconds.

This problem appeared indigenous to Word files only. In contrast, a 1.1MB .TIF file required 1 minute to process, although it increased the file size by one-and-a-half times.

Currently, SafE Mail is only a 16-bit Windows product. You can select long file names in Windows 95 (they appear truncated), and create long file names as output files — also truncated when written.

This is somewhat confusing for Windows 95 users, who have become used to long file names.

At this time, SafE Mail is available for DOS and Windows. The company is currently developing versions for Macintosh, Unix, and OS/2 platforms.

Jeff Senna is a technology analyst in the InfoWorld Test Center. He can be reached at jeff_senna@infoworld.com.

THE BOTTOM LINE

SafE Mail 1.12

BUY **CRUB**

Although it's not well-suited for enterprisewide deployment, SafE Mail reliably safeguards documents.

Pros: Very simple to use; includes compression; sophisticated encryption system; portable personalized files.

Cons: 16-bit Windows application; truncates long file names; must create encrypted e-mail messages in a text editor.

SafE Mail Corp., *Raleigh, N.C.; (800) 252-9938, (919) 676-2810; fax: (919) 676-3810; safemail@internet.net; http://www.sfmc.com.*

Price: *$249, single-user; $199 additional copies.*

Platforms: *Windows 3.x, Windows 95, Windows NT; compatible with all e-mail systems.*

LANDesk

Continued from page N/1

the virus pattern files from intel's on-line services.)

The remote-control function worked extremely well. The screen quality was very crisp when remotely taking control of my Windows for Workgroups and Windows 95 workstations and my NetWare 3.12 server.

Unfortunately, although LANDesk 2.5 does support Windows NT clients, the product doesn't provide remote-control capabilities for this operating system. The company plans to include this feature in a future release.

LANDesk's included AMS is a powerful alert system. You can configure the program to trigger any one of a number of predefined alerts, or you can create your own. Also, by using third-party software, you can have AMS send alerts to an e-mail address or pager. I successfully created alerts to notify me when workstation configuration and log-in files had changed.

Reporting is a critical feature of any desktop management package, and LANDesk excels in this area and can be used with any of the product's modules.

Not only could I query and print inventory statistics, but I also could graph trends.

The user interface was easy to use, although some of the module icons were slow to launch from within the LANDesk Management Console. I liked the hierarchical design, which segmented users and servers by client and network types.

Also, Version 2.5 includes right-mouse button functionality. This allowed me to more quickly access information on a specific workstation or server. I didn't have to click on a series of icons or maneuver through several drop-down menus.

I was pleased to see that LANDesk includes a full set of printed documentation as well as supplemental README files for installation. Both of these were welcome features. There's nothing worse than installing a program of this magnitude and having to rely on on-line documentation. Version 2.5's on-line help is not context-sensitive.

Lisa L. Sweet is vice president at Edgewood Consulting Group. Her Internet address is lsweet@aol.com.

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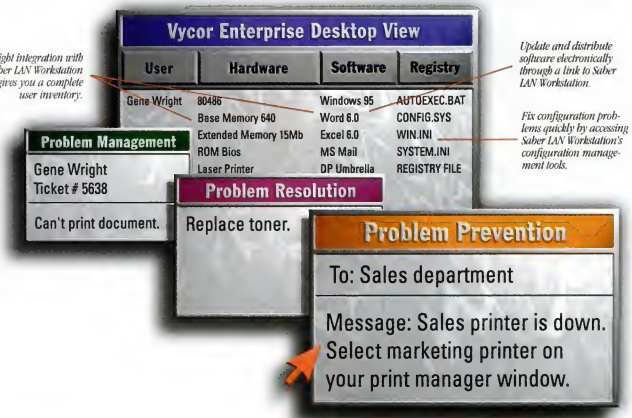

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Service Level Agreement	Yes	No
Inventory Management	Yes	No
Desktop Configuration Management	Yes	No
Software Distribution	Yes	No

*As reported by former Remedy customers.

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▸Communications server

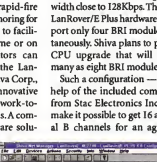
Shiva LanRover offers enhanced ISDN network access

■ But latest version of remote access solution still doesn't include reporting tools

By Andre Kvitka

IN THESE DAYS of rapid-fire deadlines, users are clamoring for remote network access to facilitate working from home or on the road. Administrators can grant such access with the LanRover/E Plus 4.0 from Shiva Corp., a longtime producer of innovative dial-in/dial-out and network-to-network connectivity tools. A combination hardware/software solution, the LanRover/E Plus efficiently provides remote network connectivity via either ISDN or analog lines.

In addition, Shiva introduced WebRover, a high-performance solution for remote, Internet, and intranet access. (Due to time constraints, I wasn't able to test WebRover.) The product consists of a LanRover, an Integrator 200 (WAN gateway), and a Raptor Systems Inc. firewall. You can configure WebRover to give some users remote access inside the firewall and keep other users outside the firewall but still give them access to the Internet or specified portions of the company's intranet. (See diagram.)



THE LANROVER/E PLUS' *NetManager provides a simple interface for configuring and managing any Shiva device on your network.*

A good thing better

The LanRover/E Plus' latest software, ShivOS 4.0, improves upon an already simple yet effective offering. The software now supports internal ISDN S/T basic rate interface (BRI) modules, which fit nicely into the LanRover's thin chassis. (Previously, ShivOS supported ISDN via an asynchronous port only.)

In addition to the integrated ISDN support, Shiva has added virtual connections, or "spoofing." Spoofing emulates active connections when the actual connection is suspended or disconnected. For example, I dialed in to *InfoWorld*'s production network and launched Lotus Notes. I set it to check e-mail every 10 minutes. After a predefined period of time, ShivOS suspended the actual connection but told Notes that the connection was active. The connection truly became active only when Notes checked my e-mail. This technology can greatly reduce ISDN connect charges.

Using industry-standard Point to Point Protocol (PPP) channel aggregation technology, the LanRover/E Plus can now use both ISDN B channels, resulting in bandwidth close to 128Kbps. The current LanRover/E Plus hardware can support only four BRI modules simultaneously. Shiva plans to provide a CPU upgrade that will allow as many as eight BRI modules.

Such a configuration — with the help of the included compression from Stac Electronics Inc. — will make it possible to get 16 additional B channels for an aggregated bandwidth of 1,024Kbps or more when using two LanRover/E Plus units in a network-to-network, multilink PPP connection. This is close to the throughput of a T1 line. Because you pay only for the bandwidth, this should result in substantial financial savings.

If you already own LanRover Plus units and wish to upgrade to support the ISDN BRI modules, you need only purchase the modules and the new version of the software. You can also mix and match V.34 and BRI modules in one LanRover unit, as well as units with asynchronous ISDN cards.

ShivOS supports multilink PPP channel aggregation but not the Bandwidth Allocation Protocol Control (BAPC) standard, which was approved too late to include in Shiva's current system. Products with BAPC support can add and subtract B channels dynamically, whereas PPP requires you to dial up each B channel individually to aggregate them. (Shiva plans to incorporate BAPC support into the next release of ShivOS.)

Shiva beefed up the software's SNMP management capabilities with management information bases for Hewlett-Packard Co.'s OpenView, Sun Microsystems Inc.'s NetManager, and other SNMP management tools. Security safeguards include internal user lists and the user-security ID lists residing in the NetWare bindery. Shiva also includes support for the Terminal Access Controller Access System (TACACS) and TACACS+ protocols, as well as the Security Dynamics Ace server and Digital Pathways Defender server software. As with previous releases, ShivOS 4.0 supports IPX, TCP/IP, AppleTalk, and NetBEUI as well as the IEEE 802.2 Logical Link Control protocol.

Getting down to business

The back of the LanRover/E Plus holds power, 10Base-T, and 10Base-2 connectors and the power, network, and port status LEDs. Analog or ISDN lines also attach to the back of the unit. The power, network, and duplicate port status LEDs reside on the front panel. You can mount the unit in a rack or to a wall.

I attached a cable between a network hub and the LanRover/E Plus, turned on the unit, and then moved to my Windows 3.1 workstation. From here, I ran a setup program to copy necessary files to run the ShivOS NetManager, an application the software uses to configure and monitor Shiva devices.

It took me less than an hour to install the product, although I've previously worked with Shiva products. I didn't have to consult any documentation to get the unit up and running as a dial-in/dial-out server on a NetWare 3.12 network.

I have a recommendation: Shiva needs to upgrade its BRI S/T modules to BRI U so users don't waste time and money on an NT-1 device.

NetManager's main windows display the Shiva devices found on the network. I simply selected the one I needed to configure or modify. Selecting a Shiva device produces an easy-to-use interface with a drop-down box that allows you to choose a more detailed set of configuration parameters with which to tinker. For example, in the General configuration window, I assigned a unique name to the chosen device. I also enabled IP and IPX protocol support and dial-in/dial-out capabilities and disabled LAN-to-LAN and AppleTalk support.

I then moved to the Ports configuration, from which I selected the synchronous mode with a clock of ISDN-1 type switch. I also entered the service profile identifier numbers and bumped up the port speed to 64Kbps. Next, I defined port dial-in telephone numbers. From there, I moved to configure virtual connection information, general IP information, and IP addresses, as well as general IPX parameters.

I was thrilled to find a much-improved procedure for installing client software. Shiva has replaced the painstaking manual configuration steps with installation wizards and automatic modem detection, automatic NetWare network-drives mapping, and the ability to create preprogrammed installation disks.

Considering the above, I was not happy when the automatic modem-detection software failed to find my ISDNtek adapter, even though it appeared on the list of supported devices. Instead, I selected the device manually, a method that would quickly grow annoying if I were installing the software for 1,000 clients. I also had to upgrade my ISDN drivers to work with the latest Shiva client software.

I was very disappointed that Shiva again has failed to provide comprehensive reporting tools. The LanRover/E Plus includes a logging utility that provides detailed information, but in a raw format. You need to export the data to a spreadsheet for processing.

I ran into only one other snag. On a Windows 95 workstation, NetManager failed to autodetect the same LanRover/E Plus hardware that it easily detected from a Windows 3.1 machine. Under Windows 95, Shiva NetManager uses the IPX, Service Advertising Protocol (SAP), and Routing Information Protocol (RIP) services to get information from the network about various installed Shiva devices.

However, because Windows 95 created an additional IPX routing thread that grabbed the SAP and RIP sockets, NetManager could not discover the attached Shiva devices. Therefore, I had to delete the instance of IPX bound to my dial-up adapter.

Andre Kvitka is a technology analyst at the InfoWorld Test Center. He can be reached at andre_kvitka@infoworld.com.

Shiva teaches old dog new trick

WebRover adds Internet and intranet access to LanRover

THE BOTTOM LINE

Shiva LanRover/E Plus 4.0

Pros: Easy to install and configure; simple client installation.

Cons: Lacks advanced reporting tools.

***Shiva Corp.**, Bedford, Mass.; (617) 270-8300, (800) 977-4482; fax: (508) 788-1539; http://www.shiva.com.*
***Price:** $7,199 with four basic rate interface (BRI) modules; $729 with single BRI module.*
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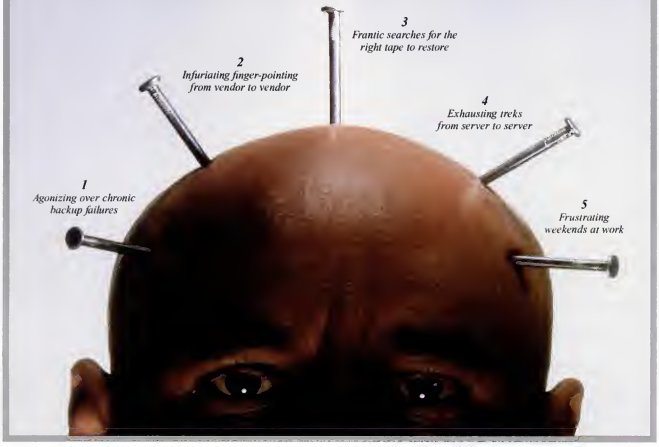

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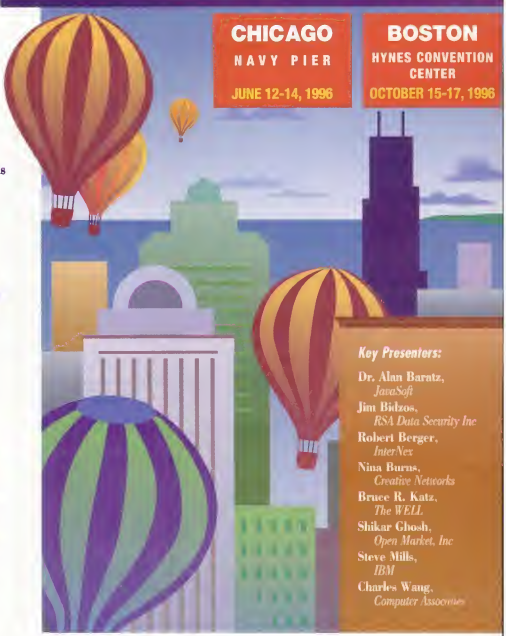

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LAN TALK · PAUL MERENBLOOM

Protocol analysis the key to solving bandwidth busters

ARE YOUR servers RIP-ping up your LAN? Are they SAP-ping it to death? Chances are pretty good that NetWare's Routing Information Protocol and Service Advertising Protocol are wasting bandwidth over high-speed wire and low-speed WAN links. Unless you learn to manage the resource, you'll simply throw money at the problem (i.e., you'll buy a bigger pipe).

RIP and SAP packets are an essential part of network information flow. But beware, the information flow that makes your network work together can also choke it to death.

In early days we employed basic bridges to connect network segments. Combined with Source Route Bridging we could link IBM's PC networks one to another and extend the reach of some midrange systems, such as IBM's AS/400s, to the entire LAN population.

Like most products, bridges have good and bad points. Among the good are easy setup, installation, and operation. The bad include poor use of bandwidth and little respect (or consideration) for optimizing the lines that link bridged sites to one another.

These problems seem to have carried over to the world of routers. Much like security options in computer systems and enhanced features in telephone switches, many bridge/routers simply let everything pass through by default. It's true this configuration may be fast and easy to implement, but now that bandwidth is precious and traffic is increasing by leaps and bounds, the issue of bandwidth management has become critical for a lot of folks.

So, what are these bandwidth busters? The busters include printers and print services broadcasts, router broadcasts, ACK/NAK (Acknowledgment/Negative Acknowledgment) data necessary on a specific LAN segment being propagated to foreign segments where it may not be relevant, etc.

How, then, can we get a handle on this issue? My first choice is to add a protocol analyzer to the environment. Another option is to turn on the Monitor feature of the router. Yet a third option is to monitor the traffic at the file server or intermediary router. The last step is to ask the WAN carrier to monitor the traffic across specific circuits and to provide you an analysis of overall traffic, peak loading analysis and trends, and bandwidth consumption broken down by protocol.

First, try using a protocol analyzer such as Network General Corp.'s Sniffer. Using Sniffer or Distributed Sniffer, you can easily collect data about the type and volume of traffic running over your network as a whole or by segment. The key advantage here is that the Sniffers and their ilk do not burden the routers, bridges, or servers.

As a passive device, Sniffer can give you a fairly unbiased view of what's running where. You can sort, on the fly, the traffic analysis with user-controlled granularity. In other words, you can take a 50,000-foot view and then zoom to the 200-foot level to examine one specific data or traffic type.

Just about every router and most of the servers I've used offer a Trace function, which enables you to see what is happening on the network or device. Issuing the Trace On command at the NetWare server prompt will flood your display with network traffic, but you can get an idea of what's happening.

A number of vendors, integrators, and consultants offer diagnostic and monitoring services and/or will rent you Sniffer. For a fixed fee, they will often monitor your network (or designated segments) and provide you with both the analysis as well as the ability to implement corrective actions.

Paul Merenbloom is vice president, technology research at Piper Jaffray, in Minneapolis. You can reach him at plmeren@mcimail.com.

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THE FUTURE FOR SOFTWARE DEVELOPERS HAS JUST BEEN UPGRADED FROM HOT TO EXTRA HOT

On March 26th, the world of software development tools got its first taste of the future. Cayenne.

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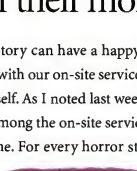
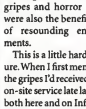
Positive on-site support stories give horror stories a run for their money

Even a horror story can have a happy ending, and maybe that's the case with our on-site service saga. But you'll have to judge for yourself. As I noted last week, there was one surprising element among the on-site service stories that I asked readers to send me. For every horror story I heard, another reader called or sent me e-mail with a story about a positive on-site service experience. And, just to make things more confusing, the same companies that were the targets of the original gripes and horror stories were also the beneficiaries of resounding endorsements.



This is a little hard to figure. When I first mentioned the gripes I'd received about on-site service late last year, both here and on InfoWorld Electric, nobody rushed to the defense of the system vendors and their traveling technicians. Remind me the next time I'm looking for positive feedback on companies to insist you only send me horror stories.

Still, I don't mean to complain. The whole idea was to get enough readers to respond to



allow me to feel comfortable citing results on particular vendors, and I think we can do that now. But you should keep some caveats in mind in interpreting these numbers. There was nothing scientific about this, because I wasn't attempting to do a survey. And the response I got clearly reflects the two extremes of readers who were either very pleased or very unhappy with the service they had received. Few readers with mixed feelings about their experience bothered to respond, and no doubt people in that category would far outnumber the two groups I heard from combined. Some of the incidents occurred several years ago, and the technicians involved in some cases were employed by third-party companies that no longer provide on-site service for that particular vendor. (See chart for the five companies that received the largest number of votes.)

Number of readers reporting on-site service experiences

Vendor	Dell	Digital	Gateway	Compaq	IBM
Positive	10	7	3	4	3
Negative	8	4	5	3	3

A few things I noticed might help you put these numbers in perspective. Not surprisingly, some of the Digital Equipment Corp. and IBM cases involved customers who had on-site service contracts on their mainframes and minis. What did surprise me a bit was that those tended to be customers reporting bad experiences, whereas the positive responses for those two companies mostly came on PC support. (None of the cases tabulated here reflect incidents where Digital or IBM was functioning as a third-party support vendor for another manufacturer.)

Gateway 2000 Inc.'s relatively poor showing may be explained at least in part by the fact that it received the most complaints from customers who simply did not get the on-site service visit to which they believed they were entitled. If we just counted those who had gotten a visit, Gateway's proportion of customers reporting a good experience would be in the same ballpark as the others.

I did get multiple votes on a number of other companies, such as Hewlett-Packard Co., Apple Computer Inc., and Micron Computer Inc., but I decided to require more than five votes to report it. One amazing thing, though, is that in no case did I get more than one report on a company where it wasn't split between positive and negative incidents.

Considering what different types of companies these are, what's most remarkable is how close they all wind up in the percentage of readers reporting positive experiences. That was also reflected in the overall totals for all vendors, which added up to 64 positive responses out of a total of 109, for an overall 59 percent positive votes.

What does that mean? In spite of the variety of business models, it all comes down to whether the technician who walks through your door knows his or her stuff. In spite of the horror stories, it sounds like in the majority of cases they do.

Ed Foster's Gripe Line examines readers' concerns about product quality, customer service, and sales practices. Write to gripe@infoworld.com or call (800) 227-8365, Ext. 710. Join his New Gripes forum at InfoWorld Electric at http://www.infoworld.com.

TO THE EDITOR

STEWART ALSOP*'s continuing discussion of the Windows 95 Registry drew responses from many readers, including one who said the whole darn thing made him glad he owned a Macintosh. Another reader stumbled across a Bob Metcalfe column on Netscape from earlier this year that — along with some recent experiences she's had with the company — prompted her to say: Netscape, market thyself.*

File creation, ownership on Mac

I ENJOYED Stewart Alsop's column on the Registry in Win95, but I think he missed the point slightly in describing how the Macintosh handles file ownership and format. [See Distributed Thinking, May 13, page 122.]

The difference between the Mac and Win95 is that ownership ("creator," in Mac-speak) and format are two different pieces of information. Files of type such as text or .GIF or JPEG or whatever can be owned by any of several programs. Two different text files, when double-clicked, may launch different programs, depending on what program is registered as the file's creator.

The statement that "WordPerfect doesn't get the right to grab that file format unless the user decides to change the format of that file" is, therefore, technically incorrect; WordPerfect doesn't get to grab the file unless the user changes the "creator" of the file.

Kevin Morgan
kevinm@lanewsbureau.com

MY UNDERSTANDING is that a Macintosh application embeds a unique creator code, assigned by Apple, into the document and that it is the creator code that determines which application "owns" the document.

I can understand why Microsoft might not want to get into the creator-code business, but they surely could have done a better job with the brain-dead Registry.

Fred Grosby
Alexandria, Va.

STEWART ALSOP'S May 13 Distributed Thinking column about the Windows Registry makes me glad I use a Macintosh. Maybe a future Registry will ensure that when a Windows user double-clicks a document icon, the system will try first to launch it with any Microsoft application, then recommend that the user purchase one at a toll-free number, and finally open the document in the user's installed application.

Frisco Del Rosario
Belmont, Calif.

No collapse, no way!

I FIND IT INTERESTING that Stewart Alsop believes that the Internet is collapsing. [See Distributing Thinking, May 6, page 110.] In what way is it collapsing? Granted, nothing involving the Internet has ever worked perfectly. In 1986, when the Internet was very far from its hypothetical future "collapse," there were many sites that did not respond immediately, reliably, or at all. Does this mean that it was about to "collapse" then and is just taking its time?

I'm also curious about the claims Alsop makes about a lack of economic incentives for infrastructure development. I find this rather unlikely. There must be some reason

[MICROSOFT] 'KNOWS WHAT'S GOOD FOR YOU,' AND MANY IT MANAGERS EAT UP SLICK MARKETING PRESENTATIONS BECAUSE THEY ARE TOO BUSY OR TOO UNINTERESTED TO LOOK UNDER THE HOOD AND SEE WHAT REALLY MAKES THINGS TICK IN DISTRIBUTED COMPUTING ARCHITECTURES.

Sally Atkins
Boston

that Digital has gone to all the trouble to develop, build, and implement the enormously powerful and reliable Alpha servers, several of which run the AltaVista Web search engine.

Certainly, many more people are starting to use the Internet every day. But there are many incentives to build infrastructure.

The content providers need better servers and connections, and they are getting them — slowly and steadily, but they are getting them.

Jonathan E. Brickman
Topeka, Kan.

Splash screen trade-offs?

OK, WE'LL ADMIT IT, splash screens are not needed. Fine! But c'mon, if software geeks have to play by the new rules shouldn't everybody? [See The Gripe Line, April 29, page 66.]

Here's the deal. We dweeby nerds will remove all splash screens from our software and let the user look at a nice image of nothing while our software loads, and we'll also suppress those inconsiderate pop-up dialog boxes...

■ *If the* TV, cable, and movie-type people quit showing those annoying credits before and after movies and TV shows.

QUICKPOLL

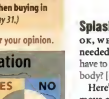
Brand names better?

Judging brand-name vs. nonproprietary hardware is a never-ending task for IS departments. Is it better to buy brand-name equipment when buying in large quantities? *(Respond by May 31.)*

Call (800) 713-INFO to register your opinion.

Re: Web collaboration

Intranet solutions to Lotus Notes, although not cost-saving, are still appealing to users. In our May 13 issue, we asked (page 64): Are you likely to move collaborative computing to the Web? Here's how you responded.



■ *If* literary and publisher-type people stop including dedications, prefaces, and appendixes. Save paper! Why can't the first piece of paper after the cover be the beginning of the story and the last piece of paper the end?

■ *If* magazine, newspaper, and publishing-type people would quit wasting half of the cover of their products with their silly logo and name. Is it really important to know what I'm reading? C'mon, the only thing important is if I agree with what is printed inside the magazine.

■ *If* people who answer telephones would stop saying Hello. This is just a verbal splash screen and simply wastes time. When the person you're calling picks up the ringing phone's receiver, just start talking and the phone companies will start making a silent call-waiting signal.

Jeffrey Evenson
Laguna Hills, Calif.

Netscape: Market thyself

I JUST SAW Bob Metcalfe's column on Internet service provider contracts. It was well-done and rang very true! [See From the Ether, April 29, page 52.]

I also wanted to mention the column from several months ago on Netscape not being at the Fourth International World Wide Web Conference. [See From the Ether, January 8, page 48.] Funny, the Netscape spokeswoman told you surely there'd be Netscape people from the Boston area attending. Yesterday I met one of only five Netscape salespeople in all of New England. I had him in to give a presentation on their product lines at a major corporation. Poor fellow. The crowd had already had the Microsoft corporate sales pitch on Microsoft's Internet products and were almost hostile to the Netscape guy. It was sad.

The point of my story is that Metcalfe's column from January points out a larger trend. Netscape is not present in corporate accounts either. They are hoping Sun or VARs will do their selling, and it doesn't work that way. Microsoft was like this in the mid-80s! Now Microsoft plays the heavy old part IBM used to play. They "know what's good for you," and many IT managers eat up slick marketing presentations because they are too busy or too uninterested to look under the hood and see what really makes things tick in distributed computing architectures.

I wrote to Netscape many weeks ago to try to explain this dilemma. No response at all. They were probably too busy, or perhaps they are just sitting on their bucks. Or perhaps they need to understand corporate account marketing? This is bad news given that they project their revenues to come from intranets.

Sally Atkins
Boston

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FROM THE EDITOR IN CHIEF · SANDY REED

Corporate Advisory Board puts Microsoft and InfoWorld in the Hot Seat

To see what's really happening on the various nets of computing (networking, Internet, intranet), you need look no further than *InfoWorld*'s Corporate Advisory Board (CAB). Some of the companies represented on our board have embraced intranet and Internet technologies to the point that these technologies are transforming the way they do business. Other companies are still weighing their options through pilot projects. And others are wondering what all the fuss is about.

Twice a year, we host a meeting of the advisory board, whose members take time from their busy schedules to give us guidance. The meetings' purpose is twofold: to take the members' technology pulses and to get feedback on how *InfoWorld* is helping them do their jobs. We gathered at a hotel near our San Mateo, Calif., office earlier this month to talk. CAB members come from a range of companies and institutions that reflect the majority of *InfoWorld*'s 310,000 subscribers. For specifics, see the CAB roster published every week at the bottom of the masthead to the right of this column.

What we learn at these meetings always helps us plan future coverage. This time, the impact was immediate, because CAB members put Microsoft's Steve Ballmer in the Hot Seat. The exchange was interesting to observe, and we hope you will find it as interesting to read. Turn to page 27 for the interview. To add your comments to the discussion, send e-mail to Opinions Editor Katy Gurley, who manages the advisory board and put the Hot Seat session together. Contact her at katy_gurley@infoworld.com.

Among the issues high on CAB members' radar screens are figuring out when to deploy 32-bit operating systems and which OS (Windows NT vs. Windows 95) to bet on, formulating strategies for asset management that include doing more with less, and finding ways to evaluate products in their individual company's context.

If you think other issues are higher on your own radar screen, send me a message.

Sandy Reed is editor in chief of InfoWorld. Contact her at sandy_reed@infoworld.com.

11 YEARS AGO IN INFOWORLD

Excel for the Mac was an awesome gamble for Gates

MAY 27, 1985 EVERY DECADE or so, certain words seem to come into vogue. In the '90s, things are "cool." And back in the '80s things were "awesome."

So guess what word we used to describe one of the biggest — if not the biggest — product announcement of 1985? OK, so you could probably guess the word. But what was the product? Here's a hint: Jazz-killer.

You guessed it. Excel for the Mac, introduced May 2, 1985, at a big splashy press conference in New York, was "packed with features," we wrote, "that industry observers say are awesome."

Those features included 256 columns by 6,384 rows, full functionality of Microsoft Chart, and file compatibility with other Microsoft programs and Lotus 1-2-3. The introduction of Excel for the Mac, then the first integrated spreadsheet program from Microsoft, was designed as a one-two punch at Lotus Development Corp.'s Jazz. Jazz was also an integrated program for the Mac but was floundering in the market.

Introducing a major Mac product was a bit of a gamble for Microsoft in 1985. By that time, far more companies were using PCs and clones than Macs. At the press conference, Microsoft announced it would produce an Excel program for the IBM PC "eventually."

Excel for the Mac was conceived by Bill Gates and his engineers in 1983.

"Their objective," our writer said, "was to design the world's greatest spreadsheet."

Or at least the most awesome.

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CURRENT EVENTS

What's happening on InfoWorld Electric

FORUMS

BUILDING AN ON-LINE COMMUNITY

One of the most appealing aspects of any on-line service is the shared knowledge pool that a community of peers can create. InfoWorld Electric's lively Forums section offers the best of on-line service discussion groups with the universal access benefits of the World Wide Web. Each week the Forums area hosts a wide variety of active discussions on topics critical to IS managers where you can share your thoughts and experiences with colleagues. Entering a Forum requires an authorized user name and password, which you'll receive by going through our simple registration process (see below right).

The Forums area is divided into three main sections: The Electric Forums, where we host discussions on general-interest topics, such as Readers Helping Readers (a forum hosted by Help Desk columnist Brett Glass, where IS managers can get answers to tough technical problems) and Reader Gripes (a forum hosted by columnist Ed Foster, where readers can discuss problems they're having with a hardware or software vendor); This Week's Featured Columns, where we host discussions based on what some of our columnists, including Foster and Nicholas Petreley, are saying; and The Test Center, where discussions focus on recent and upcoming Product Comparisons and Product Reviews that the folks in the InfoWorld Test Center are working on. The forums are rotated frequently, so there's always something new. There's a good chance each week you'll find something to pique your interest.

THE LIVELY FORUMS

on InfoWorld Electric, such as this snippet from the Readers Helping Readers forum, offer you productive discussions with IS peers.

This week, the Electric Forums feature discussions on Notes vs. Intranets, as well as continuing discussions on Help Desk Blues and Readers Helping Readers. This Week's Featured Columns section has Foster asking about on-site service: Is it always a horror story, or can there be a happy ending? Robert Lewis poses the question: Is Bill Gates trying to conquer the world, or is he just an anarchist revolutionary? Finally, the Test Center wants to hear your experiences with data warehouses: Do they help you find the information you need, or are they simply expensive black holes?

TODAY'S NEWS AND THE WEEK IN REVIEW

FAST-BREAKING STORIES REPORTED AS THEY HAPPEN

Stay on top of the latest news developments with Today's News, the core news section included on Info-World Electric's Page One. New stories are updated several times per day to make sure you have the most recent developments in the increasingly complex world of IT. We compile our news stories through the combined resources of the *InfoWorld* print editorial staff, the IDG News Service, and a dedicated InfoWorld Electric news staff, so even if you're a devoted print reader you'll find stories that you won't see in print. Plus, because we aren't limited by a weekly printing schedule, we can bring you important stories as they happen. If an important story breaks on Tuesday morning, you can read it on Electric by Tuesday afternoon – if not sooner.

We also recently added the Week in Review section, which works in conjunction with Today's News to give you a list of all the stories we've covered on Electric during the past week. After a story falls off of Today's News on Page One, it's automatically routed to the Week in Review. Just click on the Week in Review button and you'll see the past week's worth of news, organized by the day the article first appeared. Click on a title and you'll go directly to the story. The goal of Week in Review is to keep you informed of all the important news and when it happened, even if you get busy and don't get a chance to a visit the site for a few days.

ELECTRIC UPDATE

Complete text of InfoWorld available on-line next week

STARTING NEXT MONDAY, InfoWorld Electric (http://www.infoworld.com) will offer the complete text of the print version of *InfoWorld* on the World Wide Web. Each week, you'll be able to browse the contents of the print version electronically via Electric's new This Week in Print section. Click on the This Week in Print button and you'll see a Contents page listing each of the sections in the print magazine, including the recently introduced Intranet World and Networking Product Reviews demographic editions. Select an individual section and you'll see a list of specific articles in the section, all of which are reachable with a simple click.

In conjunction with this, we're also offering Back Issues (complete versions of *InfoWorld*'s print editions) in an easily browsable, visual format. Click on the Back Issues button on the This Week in Print page and you'll see a list of available years; select one and you'll see the Issue Dates and Numbers for that year. Highlight the issue you're interested in and you'll be taken to a Contents page for that issue, where you can choose the section and article(s) you're looking for.

Both the This Week in Print and Back Issues sections will initially be available to all Electric readers, but starting July 15 you will need a user name and password to access them. You can obtain an authorized name and password by filling out our simple registration form (see below). If you have already registered, your existing name and password will work temporarily, but we will ask everyone to reregister when our new registration process goes on-line June 17.

STARTING NEXT WEEK, *you'll be able to read the entire weekly print issue of InfoWorld on the Web via Electric's This Week in Print button.*

In addition to making these important changes, we'll be updating our *InfoWorld* archive, reachable via the Search button on every page, to include the complete text from our Back Issues catalog. As a result, you'll be able to find information either by browsing through the directory of Back Issues or by typing a specific keyword or concept into our ArchiText search engine.

We'll update the This Week in Print and archives every Sunday evening at midnight Pacific time so you're sure to get the latest news from *InfoWorld* every Monday morning, even if your issue arrives late or a co-worker "accidentally" walks off with your copy.

THE BASICS

- **REGISTRATION.** To access the Forums area (and, starting July 15, the This Week in Print and Back Issues areas) of InfoWorld Electric, you need an authorized user name and password, which we provide you when you register. As with the print version of *InfoWorld*, we use the registration process to gather information about the interests and backgrounds of our readers, which we use to adjust our content as well as to provide demographic information to our advertisers. Registration involves filling out an on-screen survey similar to the subscription form that *InfoWorld* print readers must complete to qualify for a subscription. Once you submit the form, we add you to our database and give you access to the site. At the moment, we do not send a confirmation note of your registration and the user name does not become valid for several hours, but we will be offering a greatly improved and immediate registration process as of June 17. In the interim, we ask for your patience and understanding.
- **FAQ.** If you have any questions about the registration process or any other issues related to InfoWorld Electric, you can read our FAQ (Frequently Asked Questions) document (located at http://www.infoworld.com/reader services/faq.html) to help you figure out the answers to common questions.
- **CONTACTING US.** You can send e-mail to any member of the InfoWorld Electric staff by highlighting the appropriate name on the Person to Person contact listing (found on the Reader Resources page), or by clicking on any of the e-mail links at the end of stories, columns, features, and sections.

OPINIONS

TALK BACK TO OUR COLUMNISTS

Read and respond to all of your favorite *InfoWorld* columnists, including Stewart Alsop, Bob Metcalfe, Brian Livingston, and Robert X. Cringely, in our Opinions section. Opinions is also the home for an expanded

INFOWORLD ELECTRIC'S OPINIONS *page gives you quick and easy access to InfoWorld columnists, as well as Al Cringely and Bob O'Donnell's columns, which are available only on Electric.*

Letters section, our daily Electric-only columnist Al Cringely (Robert's older brother), as well as Plugged In, the new column by InfoWorld Electric's Executive Editor Bob O'Donnell. The Al Cringely column brings biting industry commentary to the Web every business day; O'Donnell's column will keep you informed of the changes occurring on InfoWorld Electric. You'll also find occasional columns written specially for Electric by Nicholas Petreley and other *InfoWorld* columnists.

TEST CENTER

PRODUCT COMPARISON ON-LINE

Look for the complete text of *InfoWorld*'s highly regarded Product Comparisons on the Test Center page. Results from our testing are presented in a tabular format, and all the relevant related articles are included as direct hyperlinks.

CALENDAR

KEEP UP TO DATE

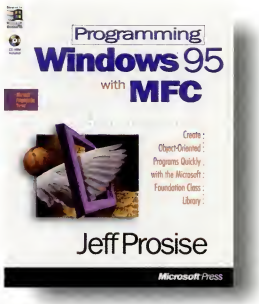
Make sure you know all about the latest important IT industry trade shows and conferences via InfoWorld Electric's calendar page. Taking advantage of brand-new technology created by Now Software, the InfoWorld Electric calendar is presented visually, one of the few on the Web to be done this way. You can copy the information from our calendar onto your own, or if you use the most recent version of the company's Now Up-to-Date personal information manager package for Windows (Version 1.5) or the Macintosh (Version 3.6), you can even drag events off our calendar into your existing Now Up-to-Date calendar.

The Petzold for MFC

—Ray Duncan

"Jeff Prosise has written the definitive introduction to Windows software development in the era of 32 bits and application frameworks. This book is the Petzold for MFC programming." *—Ray Duncan*

The Microsoft® Foundation Class Library lets you create code once and use it again and again—a major change in the way you work when you write applications for Microsoft Windows®. To be sure you harness MFC's full power, start with this extraordinary book. In 14 clear, complete chapters, Jeff Prosise reveals how to use MFC to do the routine work so that you can concentrate on the creative work. It's the comprehensive, definitive guide to MFC. The enclosed CD-ROM contains more than 40 sample programs that take you from the blackboard to the real world. If you read Charles Petzold's classic *Programming Windows 95*, you're ready for PROGRAMMING WINDOWS 95 WITH MFC.



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Catching up with the 'net

By Cate T. Corcoran

After being surprised by the success of the Internet and products such as Sun Microsystems Inc.'s Java and Netscape Communications Corp.'s Navigator, IBM, Apple Computer Inc., and Microsoft Corp. are scrambling to catch up.

All three companies are integrating browsers into their operating systems in an attempt to head off the heretical Netscape and keep the OS at the center of the universe. But so far, only Microsoft has presented a coherent strategy that leverages its current dominance in applications and Windows, although Apple did finally detail its plans as part of a reorganization announced two weeks ago.

It remains to be seen how well Microsoft will pull off its plans, although the company is likely to be successful despite strong competition and the fact that the Internet is likely to remain based on open standards. If Microsoft can succeed, it will be a remarkable feat in an industry whose stars burn out every decade or so when the computing universe shifts to a new platform.

In the short run, the Internet has turned up the competition against Microsoft, giving its users viable alternatives to Microsoft products (an outcome that has pleased even dedicated Microsoft shops) and forcing the company to incorporate Internet technologies into its products faster than it has ever accommodated new technologies before. But the Internet is unlikely to break the Intel-Microsoft hegemony, as Sun's CEO Scott McNealy, Oracle Corp.'s Larry Ellison, and others have predicted.

Microsoft faces an uphill battle on the Internet, but its huge installed base is likely to tip the scales in its favor

They say the Internet will level the playing field because the Internet is based on open standards such as TCP/IP and could potentially be used to deliver applications on any platform. In the future, they say, we'll get all of our applications off the Internet; PCs won't have to be anything more than simple devices with a fast Internet connection, and the operating system and hardware platform won't matter anymore because new applications will be written in Java or other operating-system-independent languages that will run on any platform.

It is a nice idea but rather unrealistic, industry experts and analysts agree. Although it's true that corporations are already putting up intranets by the thousands (generally to publish static documents), the bandwidth and security to deliver serious business applications over the Internet simply do not exist. And even if these simple devices were to be thriving 10 years from now, and all new development was written for the Internet, there would still be a backlog of old client/server applications, just as today's client/server applications coexist with mainframe systems. Of course, if this were to happen, the market for PCs would be likely to decline as corporations stopped upgrading. But even Internet devices would still need some kind of OS.

CENTER OF THE UNIVERSE. In the meantime, Microsoft is trying to accomplish on the Internet what it achieved on the desktop: control of the market by setting standards, the same way it conquered the desktop with

the Windows API. But can the same trick work again? Today the Internet is an open place. It runs on TCP/IP, most users use Netscape's Navigator Web browser, and most development is done for Navigator. A majority of Internet servers are still running Unix, although Windows NT is starting to make inroads. Common Gateway Interface, HTML, Virtual Reality Modeling Language, and Perl are still the most popular development tools, and none of them was created or controlled by Microsoft.

Windows is popular primarily because it is a standard — in that so many applications run on it. But Microsoft also sells a lot of its own application software, because buyers believe Microsoft products work well together. On the Internet, Microsoft is pursuing the strategy of giving away what others sell — Internet Explorer, its Web browser, and Internet Information Server, its NT-based Internet server — to make sure users keep buying Microsoft OSes, particularly NT, analysts say.

"The Internet Information Server is free, but it works on NT," says Brad Chase, a Microsoft general manager. "The Internet Server has contributed to the NT server momentum, which is pretty strong right now."

Even users who have already standardized on Navigator will probably find it difficult to avoid Internet Explorer once the company ships Nashville, the next version of Windows 95, later this year. Nashville will feature a browser metaphor as its user interface, although the more familiar desktop metaphor and icons will also be available.

If Internet Explorer becomes popular, developers might start using Microsoft extensions that would require users to view content with Microsoft's browser, much like Netscape currently does with its plug-ins.

Today, however, Microsoft's free offerings are facing an uphill battle against Navigator. "We've tried to help [various groups in our company] understand that nothing is free," says an MIS manager at a Fortune 500 food company. "You have to give up something in return — freedom and flexibility. We've just purchased 2,000 seats of Netscape's Navigator because they're the leader and they are setting the standards."

APPLE GETS ON THE INTERNET BOAT

As part of a larger reorganization, Appie Computer Inc. finally announced its Internet strategy two weeks ago, embracing Internet technologies and standards across its product line.

Several announcements were made.

- All Macintosh CPUs will be shipped "Internet ready" by the year's end.
- Netscape Communications Corp.'s Navigator will support OpenDoc components.
- OpenDoc will be integrated with Sun Microsystems Inc.'s Java programming environment. Although the details have not been agreed upon, hooks will likely be built in to Java that would let OpenDoc treat Java as an OpenDoc part, by mapping Java applets to the Systems Object Model architecture.
- Apple is expected to integrate Java into OpenDoc for System 7.5 and Copland, the next version of its MacOS.

It's possible that the world of Microsoft applications — from Internet Explorer to Visual Basic — will work better with each other than with third-party products, which could prompt users to standardize on Microsoft-only platforms.

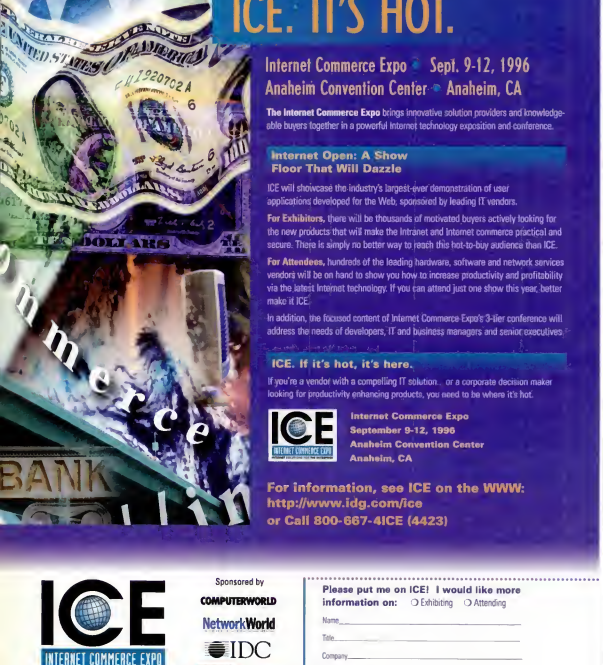
For example, Internet Explorer will support ActiveX components slightly better than Navigator, says Nat Brown, Microsoft project team leader for Distributed Component Object Model (DCOM). ActiveX components, which make up the next generation of OLE custom controls, will provide services to Internet applications, such as audio and video playback. They work with a variety of development environments from Microsoft, Borland International Inc., and others.

"Anything you do with ActiveX can be used in Netscape Navigator because we offer a plug-in that hosts ActiveX controls inside Navigator," Brown says. "But it definitely has a lesser user interface experience than what you'd really want."

For example, the Navigator plug-in won't let a viewer take up the entire screen, which could be limiting if a user needs to view a Microsoft Word document, Brown adds.

Users of Microsoft's Visual Basic or all-Windows shops are likely to embrace DCOM, which offers the company's installed base a relatively easy way to connect distrib-

▸ Internet, page 74



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Waiting for DCOM

By Cate T. Corcoran

Distributed Component Object Model (DCOM) won't start shipping until late this year, but an alternative to it already exists. The Object Management Group (OMG), which now has about 600 vendor and user members, including Microsoft Corp., has developed a standard called CORBA that defines how distributed objects can communicate over a network.

CORBA grew out of a specification started seven years ago by a group of vendors that included Hewlett-Packard Co., Novell Inc., Sun Microsystems Inc., IBM, and Digital Equipment Corp. They happened to choose TCP/IP as CORBA's underlying network protocol, which was fortuitous because that's what the Internet runs on.

CORBA and DCOM both use an object request broker (ORB) to find objects or applications and send communications between them over a network. Both DCOM and CORBA replace an unstandardized way of communicating between software, which required knowledge of what was on the other side: client or server, type of remote procedure call, and path, says Chris Stone, OMG's director.

AND IN THIS CORNER. DCOM's detractors criticize Microsoft for basing DCOM on OLE, which they say is complicated to use, works slowly, contains too much code, and involves too many APIs.

CORBA works by sending out an asynchronous remote procedure call, meaning that the originating machine can take care of other processing until its request comes back. The ORB finds its target object somewhere on the network, makes sure it executes, and then tells the sender that it executed. The interfaces between the objects and the ORB are the same, regardless of which machine the software is running on, because they all conform to the CORBA interface description language.

Microsoft's DCOM, on the other hand, uses a synchronous ORB to find OLE-enabled programs, which it launches on a remote machine (provided that it has access). It returns the information to the requester, which then reads it with a reader or the actual application.

DCOM will appear in Windows NT this summer and in Windows 95 at year's end. A Macintosh version is scheduled to ship in the first half of next year. Microsoft and Software AG recently announced that Software AG is working on versions of DCOM for various flavors of Unix. These will be available sometime in the second half of this year or early next year, says Nat Brown, Microsoft's DCOM project team leader.

But DCOM will work best with systems that already support OLE, and that's largely a Windows world, according to some users and analysts. CORBA is designed to work on a variety of systems, whereas DCOM and OLE were designed from the beginning to work with Windows.

On the other hand, CORBA and DCOM will work together to some extent. Third parties are creating gateways that will translate CORBA requests into DCOM requests and vice versa, so a CORBA application and an OLE application can communicate.

Some critics of DCOM say it lacks the high-level services found in CORBA. CORBA is object-oriented, defining characteristics such as inheritance, polymorphism, and encapsulation, whereas DCOM calls and launches applications and data.

Microsoft is working around some of DCOM's limitations. For example, DCOM will allow programmers to specify how many values a program will return at a time, so the requester doesn't have to wait for, say, a huge database to be sent over the network before it can do something else, Brown says.

Users waiting for DCOM can look to CORBA to solve their enterprise needs

Eventually, Microsoft will need to adopt an asynchronous protocol, says Don DePalma, a senior analyst with Forrester Research Inc., in Cambridge, Mass.

"People will start hitting problems when they write applications that are either connected intermittently or connected sporadically," DePalma says.

A few months ago, IS managers complained that, because it is based on OLE, DCOM (then known as Network OLE) would require users to have and launch an application on their desktop before they could read data from the same application residing on another machine. Microsoft plans to address this concern by creating run-time modules, or "readers," for Microsoft Office and making the readers available at no charge.

This approach is similar to CORBA's, which also uses run-time modules to read various file formats.

Whether the OLE architecture will be capable of handling mission-critical systems with large amounts of traffic remains to be seen.

"The OLE world is desktop-centric," says Bud Tribble, vice president of Internet strategy for Sun. "You're talking about documents with images and objects embedded in them, such as a spreadsheet with a word processor embedded in it. It is a stretch to take that to the point where you could have an airline reservation system talking back to a Sabre system."

But OLE has the advantage of having a huge installed base. Many Windows applications are OLE-enabled, and all of Microsoft's tools, as well as third-party development environments such as Borland International Inc.'s Delphi, use it. Even if DCOM isn't the best way to distribute data around a network, it will certainly be convenient for corporations that use a lot of Windows products.

YOU TALKING TO ME? Any program that supports OLE will work with DCOM without any changes, Brown says. OLE programs feature identifiers — similar to name tags — that other OLE programs can read, and DCOM uses these identifiers to find programs over a network. That means the programs accessed by the ORB don't have to know a thing about DCOM. As soon as NT supports DCOM, any OLE application will be capable of using it.

In the meantime, several vendors have come out with ORBs for CORBA, including Java applets that will run under Netscape Communication Corp.'s Navigator. So if a developer is creating a Java applet that needs to communicate with a server, the company could create a connection. If a user clicks on a Web page that includes such an applet, the program can get data off a server without the user realizing he or she is using CORBA.

TKO OR SPLIT DECISION? Many corporations have yet to choose between CORBA and DCOM, but that's not surprising, because DCOM isn't out yet.

One large Midwestern manufacturer had been developing CORBA projects for several years but abandoned its development when it found that the early implementations were more appropriate for workgroup projects than the enterprisewide applications the company needed. But now that CORBA has enterprisewide services in place, says a member of the company's advanced technology group, the company is taking up CORBA projects with renewed enthusiasm. It wants to manage the back end of its client/server applications, including Web-based applications for sharing data with business partners, and has been working with a beta copy of DCOM, which it says is inefficient. Its limited levels of service also make it more of a workgroup than an enterprise solution.

At least one Microsoft shop, a Fortune 500 food company, has chosen DCOM.

"We need the flexibility in our business processes of having distributed objects and the ability to reuse objects and call them as needed," the company's IS manager says.

The upshot is that most Windows users, particularly Visual Basic programmers, will probably use DCOM when they need it to run, for example, queries against a database on another machine. Corporations that rely on mainframes and Unix systems and develop their own enterprisewide applications are likely to go with CORBA, analysts agree. Windows ISVs will make use of DCOM, whereas Unix, Macintosh, minicomputer, and mainframe vendors have already embraced CORBA, and they are adding it to their OSes and software. OpenDoc, the multimedia development environment created by IBM and Apple Computer Inc., uses CORBA for messaging.

"Out of the chute, the CORBA technology is much more scalable to the kinds of things large organizations are going to want to do," DePalma says.

The result is likely to be a split between the Windows world and everything else, just as today OS/2, Unix, and Windows developers have their separate camps. But the two worlds will be able to communicate with the translation layer the OMG is developing for OLE.

Cate T. Corcoran is a free-lance writer based in San Francisco.

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IS gets a handle on teamwork

By Daniel Lyons

As client/server projects grow ever more complex, IS managers often turn to teams to get the development work done. Although this approach is increasing in popularity, it also adds another layer of complexity to the process — managing the team.

The challenges that arise include selecting teams with the right number of people, skill sets, and personalities; finding tools that help rather than hinder the team process; and, of course, communicating effectively.

"Communication is a huge issue," says Andy Hiser, vice president of management services at Republic Mortgage Insurance Co. (RMIC), in Winston-Salem, N.C. "It's as if every person speaks a different language, as if one speaks French and another Spanish. You have to find some common ground."

At RMIC, the "language" issue is particularly significant because the company uses teams made up of 10 members each that combine IS developers and managers from business units.

Programmers and businesspeople have very different backgrounds and modes of communication, Hiser says.

This is where adopting the appropriate tools can come in handy. Process management and version-control tools can help an IS manager take the first steps to improve communication and help teams work better in general, Hiser says. For example, they can help by giving programmers an agreed-upon way of referring to different elements of a project.

Tools and good management are needed to tackle team development tasks

RMIC chose process management tools from LBMS Inc., in Houston. At MCI Communications Corp., in Washington, developers use PVCS Version Manager, a popular version-control program from Intersolv Inc., in Rockville, Md.

"It lets us do concurrent development, so we can have developers working together without bumping into each other," says Theresa Fitts, MCI's director of distributed computing services.

OLD APPROACHES, NEW TWIST. Like several popular version-control products, PVCS evolved from the mainframe world. Experts are quick to point out that, along with the tools, the fundamental strategies involved in team development come from that world as well. But they also note that team development in the client/server world has unique challenges.

"People doing client/server development are running into the same things that people ran into on the mainframe," says Peggy Ledvina, vice president of application delivery strategy services at Meta Group Inc., a market research company based in Stamford, Conn. "But in the client/server world, the problems are more complex because everything is so highly distributed."

Also, new technologies such as object-oriented development have brought changes to team techniques.

"One very important fundamental change is that we're having an amazing boom in new technology," says David Hsieh, vice president of worldwide marketing at LBMS, which recently released a new object repository, Insight, for object-oriented development. "Two years ago nobody had heard about the World Wide Web. Five years ago nobody was doing object-oriented development. Today everybody is involved in object-oriented strategies."

Ledvina divides team development tools into three categories: data repositories, which manage the sharing of information; project and process management; and software configuration or version-control tools.

Version-control software is an absolute necessity, says David Milburn, president of Financial Systems Consultants Inc., a software consulting and development company in Falls Church, Va.

"If you don't have a good version-control process in place, you can end up inadvertently undoing or ruining the work that someone else has done," Milburn says. "The reason those tools were initially created was that it's a common problem in team development to step on each other's toes. It can be a tremendous problem."

Milburn's company also uses PVCS.

"[It] is a great product," Milburn says. "But still there are other utility tools that we've had to develop for ourselves."

SIZE AND OTHER MATTERS. But tools, of course, aren't a complete solution, says Bob Barna, data and standards administrator at the Ministry of Northern Development and Mines, in Sudbury, Ontario.

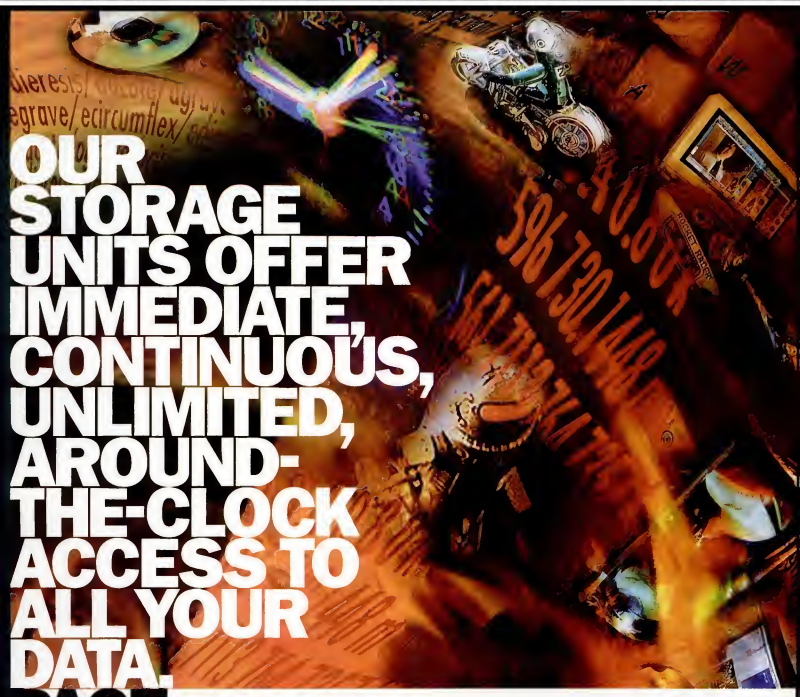
"There are managerial issues around working in teams that the tools don't necessarily take care of for you," Barna explains. "The tools are all well and good, but if there's no communication going on, the tools do nothing for you. Human skills combined with the power and capabilities of tools are what make you successful."

Client/server projects that appear simple when they start out as small pilot projects can, as Ledvina notes, grow complex when they are scaled up and deployed across an enterprise. It's precisely at that point, experts say, that you not only need to start using tools, but you need to adopt some kind of formal structure as well.

"When you have a small team, say of three or four people, you don't need much infrastructure — you can have informal meetings and handle things organically," says LBMS' Hsieh. "But when you start getting up to enterprisewide projects, you have to have a structure. The bigger you get, the more structured you have to be."

Different companies have different opinions regarding the

▸ Teamwork, page 74



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▸ **Teamwork (from page 70)**
ideal team size. RMC's Hiser says he likes to have three to five members on a team, seven at the most, for code-writing tasks (as opposed to the 10-member cross-departmental teams the company uses for other aspects of its application-building process).

"We find that if you get above seven people writing code, that's just too big," Hiser says.

At Shell Services Co., in Houston, one project involved 100 developers arranged into groups under team leaders, says Kirby Fortenberry, senior staff systems analyst. Those team leaders reported to a core group with four members: a project lead, a business lead, a design lead, and an implementation lead. The overall 100-member team was broken down into subteams with 10 members each.

Everyone designs teams differently, but there are a few key members that many organizations say are always required.

The first thing a team needs, Barna says, is someone to administer the repository of updates to the source code. And, in addition to having a repository manager for each team, it's good to have an enterprisewide repository manager who helps teams share code with other teams. Barna fulfills that function at his company.

Handy team tools

PVCS
Intersolv Inc.
Rockville, Md.

PE/Process Manager, SE/Repository
IBM Inc.
Houston

ClearCase
Atria Software Inc.
Natick, Mass.

KeyTeam
Sterling Software Inc.
Dallas

"There has to be communication between different project teams," Barna says. "So at the enterprise level, I'm accepting work that teams have done and integrating that into an enterprisewide repository. It's sort of a multilevel process. It helps ensure as best as possible that sharing and code reuse takes place."

Another key member is a database specialist. Most client/server projects are built on a database, and most project teams seem to have one person who functions as the database guru.

"We'll almost always have a database administrator to handle the database side of things," Hiser says. "Then we'll have a business unit person, a project manager, and one or two GUI application developers, probably using [Powersoft Corp.'s] PowerBuilder."

THE INTANGIBLES. The first thing Shell Services does when putting together a team is have all members fill out personality assessment forms, Fortenberry says. Then those members are taken off-site for a daylong meeting in which they review their assessments and get to know one another.

The idea, Fortenberry says, is to acquaint team members with each other's personal styles before they begin the project. In other words, what he calls the "touchy-feely" stuff.

"We did exercises where people built bridges out of blocks," Fortenberry says. "We had balloon-blowing contests. It sounds kind of silly, but it's an event that the team can look back on later. We'd alternate between having serious conversations and some not-so-serious things."

Hiser, during his teams have done similar exercises, says: "We sent our teams off to do a full-day ropes course. It helped to build cohesion. You get people to know each other on a personal basis. It helps to understand how they're going to react when they get into a tight situation and how they communicate."

And, of course, there are meetings. Nobody likes them, yet they don't happen any less often and seem to go on forever. One trick used by a manager at a large consulting company was to make everyone stand up during meetings. That way there was no dawdling.

Tips for teams

- Meet often, but quickly. Try "stand-up" meetings
- Keep team members near each other
- Be aware that tools, although helpful, can't do everything
- Break a big team into smaller groups of five to eight members, just as you would break up a big project into smaller tasks
- Spend time before a project begins getting to know each other's strengths, weaknesses, and personal styles

Another key to effective teamwork is to put developers in the same location, preferably with offices next to each other. Fortenberry says his company created a workspace for its 100-member team by clearing out the entire fifth floor of a building.

"It really paid a lot of dividends to put everybody close together," Fortenberry says.

Others agree.

"Most of our group sits together," says Bob Hoffmann, IT engineer at Hewlett-Packard Co.'s Disk Memory Division.

Hoffmann's teams use PVCS to handle version control and share information using Netscape Communications Corp.'s Navigator to tap in to Web sites.

"We have users on both Unix boxes and PCs," Hoffmann says. "The beauty of Netscape Navigator is that it gives us a quick-and-dirty way to have a multiplatform information sharing tool."

It isn't easy to blend these ingredients — tools, logistics, and people with individual attitudes as well as skills — into a good mix. But managers who have met the challenge of building a good team find it leads to client/server projects that are built just as well.

Daniel Lyons is a free-lance writer based in Ann Arbor, Mich.

▸ **Internet (from page 66)**
uted applications over a LAN or on the Internet, users and analysts say. For instance, programmers could design an application that runs locally but goes over the network to query a database, find all the customers that haven't paid their bills in the past six months, and return the information to the local application. DCOM was designed from the ground up to work well with Windows OSes and applications, although it will be ported to the MacOS, Unix, and other platforms. Microsoft has even proposed it as an alternative to Java (as well as CORBA), in the sense that it will be capable of launching a program on a remote machine, but one is a language and the other is a communications specification. (See related article, page 67.)

TAMING JAVA. It looks as if Microsoft is likely to tame Java as well. Sun recently announced that most major companies will license Java, but Sun also said that other companies are free to develop enhancements to the code as long as they give the enhancements back to Sun to incorporate into the product. Analysts say the agreement makes it possible for Microsoft to control the direction of Java.

"If Java is to become the lingua franca, the killer bee of Internet software, then clearly Microsoft has removed its sting with the Windows environment," says Peter Kastner, an analyst with the Aberdeen Group Inc., in Boston. "Microsoft [now] has the design responsibility for Java on Microsoft operating systems. And Microsoft can use features of Win95 and NT that would be very difficult for other operating systems to support."

Meanwhile, Microsoft isn't writing any Java applications and is developing a paradigm in which the desktop operating system is central to anything users do over the Internet.

"If you want to retrieve a [Lotus Development Corp.] Ami Pro document and you don't have the application, the way we want the world to work is the browser and the desktop will know where to go to get that component for you," Brown says. "Then you'll be told, 'Here's the free read-only version and here's how to purchase the application if you go to this Web page.'"

For example, if a user receives a document from an application he or she lacks, the user would find the application or a viewer with Internet Explorer, then download and launch the application or the viewer. Alternatively, the user could find the application with DCOM and launch it on a remote machine.

THE INTERNET FOR THE REST OF US. Apple made a good early move by including TCP/IP support in its operating system, but since then it has fallen terribly behind, analysts say. It needs to offer credible midrange and high-end servers as well as remote dial-up protocols, Web browsers, and e-mail packs, says Bruce Byrd, director of marketing for Livingston Enterprises Inc., a router and server manufacturer based in Pleasanton, Calif.

Apple is planning to integrate its Cyberdog Internet software suite, announced two weeks ago, into the next version of the Mac-OS (aka Copland), which will let users browse the Internet from inside any OpenDoc application.

Apple also announced a reorganization that clearly puts the Internet at the center of its own universe. (See "Apple goes to 'net to survive," May 20, page 27.) Apple Chairman and CEO Gil Amelio says that the company will make all of its Macintosh CPUs "Internet ready" by year's end. And Apple will embed Java (see article, page 66) in a range of products, including OpenDoc, Cyberdog, and the MacOS. Netscape has announced that it will support OpenDoc components in a future version of Navigator.

IBM could become an important Internet player, but so far it has been playing mainly to a captive audience of loyal IBM customers. To its credit, the company was the first to add Internet access to its desktop operating system (OS/2 Warp), has recently made a big push with it for advertising, and can offer its own private worldwide network as well as services and integration to customers. IBM announced two weeks ago that it will integrate OpenDoc with Java in the next version of OS/2 Warp, due in the fourth quarter. The company will market and distribute OpenDoc components for OS/2 Warp in June, with plans to deliver components for Windows 95 and Windows NT later this year. Analysts also say the company made a good move by adding Internet access to Notes.

IBM has been adding Internet capabilities to its high-end software development tools and databases on various platforms, but analysts note that it has not been terribly successful with development tools in the past.

Others, however, believe that IBM will stake out a place on the Internet.

"It's too easy and shows no critical thinking to count IBM out on the Internet in May of '96," Kastner says. "But it's fair to say the energy required to get the mass of IBM moving in the Internet direction is huge."

A RISING TIDE. Even if none of these companies succeeds in controlling the direction of the Internet, they'll still benefit from its popularity, as will many other technology companies, and users will benefit from a wealth of products based on open standards.

Businesses will spend the next 10 years connecting disparate systems and leveraging the data in these systems, according to the Federal Bureau of Labor Statistics, and the Internet is the most likely medium with which to do it. Think of the Internet as the next killer application. Corporations, in particular, will buy new development tools, servers, and software for creating and managing Web sites and intranets. Companies say they are already feeling the buoyant effect of the Internet on their businesses.

"The Internet is a significant portion of our business," says John Landwehr, product marketing manager for Next Software Inc. The company announced about 10 large customers for its WebObjects software last month and has grown from about 200 to 350 employees since it closed its hardware business.

Although the Internet may not knock Microsoft out of orbit anytime soon, unexpected successes such as Java and Navigator have forced the company to move faster than usual.

Users who want interoperability between the Internet and Windows are likely to get it much sooner than they received support for multimedia capabilities, for example, in the past. The worst danger Microsoft's strategy poses for users is that the company will force users to adopt technologies that require Microsoft applications and OSes, rather than products people really want and need.

But Microsoft isn't the only company out there trying to seduce users with free or easy-to-use products that just happen to promote its own technologies. It's just the company most likely to succeed because of its huge installed base.

Cate T. Corcoran is a free-lance writer based in San Francisco.

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MANAGER'S BOARD BULLETIN

A GOOD BUY. Electronics retail chain Best Buy Corp. has implemented a client/server audioconferencing system that has reduced daily conferencing costs significantly and is easing the chore of participating in conference calls. The MeetingPlace conference server, from Latitude Communications Inc., enables users to schedule conferences from any location and deliver pertinent documents prior to and during a meeting. MeetingPlace can notify all participants of the time of a conference call via e-mail or fax and then dial out or page users just before the meeting begins. Best Buy stores materials from the meeting, including audio recordings, on the server for retrieval by anyone who could not attend the meeting. Best Buy originally expected full payback on the system in 18 months, but it now estimates that the system will pay for itself in less than 10 months. Latitude, in Santa Clara, Calif., can be reached at (800) 999-7440, or http://www.latitude.com.

GOING UP. A survey released by the Updata Group shows that 1995 was a record year for professional services companies, with revenues increasing a prodigious 25.2 percent, compared with a healthy jump of 18.9 percent in 1994. Updata's survey of U.S. IT professional services companies confirmed that large corporations continue to favor outsourcing of technology service needs, in part because of the complexities involved with the implementation of open systems and client/server environments. The survey focuses on companies that provide technical expertise to clients in the commercial sector. The study can be purchased for $595; contact Updata, in Holmdel, N.J., at (908) 946-2000.

A CIVIC-MINDED LINK. Direct, on-line access to all Los Angeles County Superior Court probate records is now available through Ameritech Corp.'s automated CivicLink system. Previously, these records were only available at the courthouse. Now CivicLink customers can access the information by modem and search records by name or case number. Costs for the service are assessed on a per-transaction basis. For more information, call Ameritech, in Chicago, at (800) 307-1100.

IS SURVIVAL GUIDE · BOB LEWIS

In the IS vs. end-user conflict, Microsoft is on the end-user's side

MANAGEMENT SPEAK: *I don't totally disagree with you.*
TRANSLATION: *You may be right, but I don't care.*

Thanks to reader John Priebe

THINK WE HAVE this Bill Gates thing all wrong.

Lots of IS managers responded to my column on the return of the mainframe mentality, concerned about the damage renegade end-users can cause. Most of these letters recommended processes that prevent end-users from making mistakes. That's when it hit me: Bill Gates is the one guy trying to maintain an out-of-control desktop. Look at Microsoft Corp.'s tactics and contrast them with its competitors'.

- Microsoft invented Telephony API (TAPI) that links phones and computers at the desktop. Novell Inc. and AT&T invented Telephony Services API (TSAPI), which provides similar services through a server/PBX connection. IS can control and manage TSAPI. End-users can use TAPI without IS ever knowing about it.
- Microsoft is putting together Peer Web Services, which will let everyone publish HTML documents on intranet servers. This empowers end-users while making them harder to control. Meanwhile, Microsoft's competitors are focusing on Java, which gives IS new ways to develop and control applications. Significant fact: Making HTML the standard enterprise document format breaks Microsoft's de facto monopoly in word processors.
- Microsoft builds PC operating systems that run on autonomous desktops. Many competitors (Oracle Corp., IBM, Sun Microsystems Inc.) have embraced the notion of a network computer — one that only has the functionality IS provides through the network.
- Microsoft focuses on ease of installation and use. Despite all the griping, Windows 95 installs with remarkably little pain in the majority of cases, and the real attraction of NT server over Unix, NetWare, and even OS/2 is how easy it is to set up and administer.
- You don't hear Microsoft extolling the virtues of thin clients, which, after all, waste the processing power at the desktop while requiring bigger servers for IS to run. Microsoft's competitors? They all develop for and sell to IS. Novell used to market (OK, what substituted for marketing for the kids in Sodium Valley) to renegade department managers tired of waiting on central IS, and Novell became the dominant player in the LAN marketplace.

Then Novell started to become legitimate, using "enterprise" as an adjective and selling to central IS instead of its original customer base. Novell now focuses on technologies that increase IS' ability to manage the enterprise. In the bargain, it has failed to gain significant market share for any product, no matter how excellent, that provides end-users with personal power and productivity.

Sun, IBM, Oracle, Digital Equipment Corp.? They've never heard of end-users and probably wish they'd go away. End-user activities don't sell big iron, or even medium-size iron. They don't sell database servers (you have to deal with IS to get at those). The Macintosh is the original end-user machine, and Apple Computer Inc. had similar ideas.

Unfortunately, years of inept management at Apple caused the product line to stagnate, boring the daylights out of everyone who watches this industry. We may be willing to wait 15 minutes for a Web page to download, but we won't tolerate boredom.

End-users want to work without IS looking over their shoulders. They want to fiddle around, gradually creating exactly what they want, emerging only when the finished product is ready for inspection, whether it's a document, a spreadsheet, or a small database application. That's why personal computers became popular in the first place and why the big players uniformly missed the boat.

Yes, Bill Gates is a fierce competitor, and, in fact, is one of just a few in the industry who knows what game he's playing. Gates, along with Scott McNealy of Sun, Larry Ellison of Oracle, and maybe one or two others, is playing winner-takes-all poker. The rest are busy increasing shareholder value, maximizing profits, and doing all the other stuff that gains short-term success at the expense of world domination.

Only 1 wonder: Does Chairman Bill really want to rule the world, or is he playing a deeper game?

Bob Lewis is a consultant with Perot Systems Corp., in Minneapolis. Write him at Robert.Lewis@ps.net, or join his Forum on InfoWorld Electric at http://www.infoworld.com.

WORLD WIDE WEB

'Net gains in software sales

Worldwide sales of Internet software are projected to skyrocket to an estimated $8.5 billion in 1999, up from $127 million last year

SOURCE: FORRESTER RESEARCH INC.

Calendar

June

14-15 *Canon Digital Solution Forum '96, New York.* Conference on managing networked documents and images from the desktop. Contact Canon, (212) 527-8839.

18-20 *PC Expo, New York.* Contact Blenheim Group USA Inc., (800) 829-3976.

18-21 *IBM Object Technology Conference, San Francisco.* Conference for IS managers and application developers interested in object technology. Ask for "Conferences," (800) 426-8322.

23-27 *SuperComm '96, Dallas.* Exploring networking and communication technologies. Contact SuperComm '96, (800) 278-7372.

24-28 *WinDev International Developers' Conference for Windows, Cambridge, Mass.* Contact Boston University Corporate Education Center, (508) 649-4200.

July

1-3 *Tools & Integration: New Horizons in Productivity, Cherry Hill, N.J.* Symposium on technologies for logistics, engineering, and management disciplines sponsored by the International Society of Logistics. Contact Glenn Wisbey, (301) 459-8446.

28-30 *Spotlight, Laguna Niguel, Calif.* Conference on the future of interactive media. Contact Spotlight, (800) 633-4312.

August

4-9 *HPWorld '96, Anaheim, Calif.* Hewlett-Packard user conference. Contact Hewlett-Packard, (800) 990-3976.

26-29 *The Support Services Conference & Expo-West, San Francisco.* Gathering for support and services professionals. Contact Help Desk Institute, (800) 248-5667.

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of my firewall?"

DEFENSE

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Casino's C/S system handles high-stakes transactions

■ PC-based servers conduct millions of transactions with complete accuracy and no downtime

By Daniel Lyons

HARD TO MISS the media blitz that attended the opening of Las Vegas' latest casino last month. Gleeful officials at Grand Casinos say their new Stratosphere Tower casino and hotel will be to Las Vegas what the Eiffel Tower is to Paris. At 1,149 feet, the 135-story Stratosphere is the tallest freestanding structure west of the Mississippi River. The tower, which opened in April, boasts not just the requisite wedding chapels and de rigueur slot machines and roulette tables, but also Disney-style thrill rides at the very top of the tower.

Even in Las Vegas, the Stratosphere stands out for its height and hubris. But look closer. Behind all the glitter and thrills, the casino is different from its competitors in one other vital area: The Stratosphere has bet the house on a next-generation client/server information system based on Tricord Systems Inc.'s PowerFrame servers running NetWare and a lineup of Windows-based applications. In a transaction-laden industry like gambling, Grand Casinos has rolled the dice to give itself a technological edge.

CASE STUDY

"We're the only casino in Las Vegas that uses an entirely PC-based platform," says Jim Mandel, vice president of systems at Grand Casinos Inc., whose headquarters are in Plymouth, Minn. "Most of the other casinos use mainframes or minicomputers."

Mandel says the company enjoys all the advantages that client/server systems have over legacy systems: lower cost, easier maintenance, and greater flexibility.

"Everyone agrees that in the long term our information system is the direction that all of the casinos will be taking. We're just there now," Mandel says.

Furthermore, Grand Casinos' system architecture offers a successful example for any manager with a mission-critical mandate to provide information technology 24 hours a day, every day.

Founded in 1991, Grand Casinos is among the fastest growing companies in America, according to *Fortune* magazine. Sales in 1996 are expected to reach $1 billion. The company has 10,000 employees working in seven casinos in Minnesota, Louisiana, and Mississippi. The Stratosphere is the company's first foray into the gambling motherland, Las Vegas.

TRACKING HIGH ROLLERS. In the dynamic gaming industry, Grand Casinos has shown itself to be a daring player, opening new casinos at a record pace. So it is probably no surprise that the company has taken an iconoclastic approach to information systems.

"What we're doing here is something that never has been done before in Las Vegas," Mandel says.

But it has been used before — at the company's other casinos. The system at the Stratosphere is almost identical to systems in use at six Grand Casinos locations. At the heart of the system are seven fault-tolerant Tricord PowerFrame ES/500 servers.

Six servers run in mirrored pairs: one pair for slot machines, one pair for hotel management, and one pair for administrative work. The seventh server supports food and drink venues. Mirroring is handled by SnapShot-Server from Vinca Corp., based in Orem, Utah, which automates the backup process and assures uptime of almost 100 percent.

PAMELA D'ORAZIO

TAKING THE PLUNGE *into client/server, Grand Casinos' vice president of systems, Jim Mandel, decided to eschew the Las Vegas standard, AS/400, for an Intel roller coaster.*

Users are connected on Ethernet 10Base-T networks with NetWare 3.12 as the network operating system. Databases run on the Btrieve database engine from Btrieve Technologies Inc., in Austin, Texas.

Users have diskless NEC Technologies Inc. Pentium PCs running Windows 3.1, with standard off-the-shelf PC applications, such as Microsoft Corp.'s Word and Excel, as well as some proprietary applications developed by the company's IS department and some commercial applications unique to the casino industry.

The most significant of these is an application called Oasis from Casino Data Systems Inc., in Las Vegas, which monitors slot machines and tracks player activity. Player tracking lets the casino give rewards to players based on how much they gamble.

At slot machines, players swipe their cards through readers, and the system keeps track of how much they play. At gaming tables, players give their cards to a pit boss who swipes it through a reader and keeps track of each player's activity by entering it into the PC.

The casino's accountants keep track of winners and send out 1099 tax forms that include the winner's Social Security number, address, and other personal information. Government regulations require that the entire system be audited nightly.

"Most companies do an audit once a year, but we do one every day," says Roger Roden, an operating systems analyst at Grand Casinos' headquarters.

In fact, probably the biggest challenge when designing a casino information system is the fact that casinos are, by their nature, so highly data-intensive.

Consider that the Stratosphere has 2,500 slot machines, 1,500 hotel rooms, and 400 network users, including 300 nodes for office workers who use the administrative system.

BETTING ON INTEL. Because the casino is a 24-hour-a-day operation, there is zero tolerance for downtime. It was that need for ironclad servers that first steered Grand Casinos to Tricord. Price-performance ratio and scalability were also factors.

"We looked at other systems, but what we liked about Tricord was the expandability and the speed, and also the fact that it has independent I/O controllers and processors," Roden says.

Roden says that because users have diskless PCs they need fast input and output on the servers.

"We have to have a server that can take a lot of users without experiencing a hit in performance. The research we did with Tricord showed that we could add a lot of users without having the performance degrade at all," Roden says.

The standard PowerFrame server configuration at Grand Casinos has a 133-MHz Pentium processor with 192MB of RAM and 12GB to 16GB of hard disk space.

Taking C/S to new heights

Challenge: Grand Casinos' newest casino required systems to accommodate millions of transactions with complete accuracy and absolutely no downtime.

Solution: Instead of going with the industry-standard AS/400 servers, Grand Casinos chose an Intel-based client/server architecture with Tricord PowerFrame servers running NetWare and a lineup of Windows-based applications.

Benefit: A fault-tolerant system boasting very low IS support costs.

Mandel says the cost of the overall information system at the Stratosphere is "in the millions," but he declined to be more specific.

Officials say, though, that their client/server system is far more cost-efficient than the systems in use at other casinos. Many casinos use systems based on IBM AS/400 minicomputers. Roden says Grand Casinos officials recognized Intel-based superservers could provide a more flexible solution for less money.

"With the AS/400 you have to have a slew of programmers on hand, and it takes a long time to get things written up and done, whereas with the PC platform things are much more flexible. You can make your changes on the fly," Roden says.

In fact, one of the primary advantages of using Intel-based superservers is that Grand Casinos can rely on a smaller IS organization. The company assigns six IS staff members to each casino location and has a primary IS staff at its Minnesota headquarters.

"Altogether we have about 100 people doing all of our operations, maintenance, programming, and telephony," Mandel says. "That's about a quarter of what other companies would have to support an operation of this size."

Grand Casinos links all of its casinos on a WAN via T1 connections; all sites can communicate with each other directly. Software upgrades are distributed over the WAN from headquarters.

"We have total interproperty connectivity," Mandel says. "We can communicate from one casino to another, and it's effectively a local call. We share a lot of e-mail and also financial and payroll reports."

It's too early to tell how effective the IS system will be at the Stratosphere. But at its other sites Grand Casinos has experienced uptime of more than 98 percent with the Tricord machines, Roden says.

The first Tricord servers at Grand Casinos had 66-MHz processors. Recently Grand Casinos upgraded to 133-MHz processors and added more memory. The capacity expansion, Roden says, is a measure of the company's success.

"We're getting more players," Roden says. "The databases in the casinos down south now have about a million names."

In 1995 Grand Casinos grew at a rate of more than 400 percent and became the fifth-largest casino company in America. Now, as the company launches its biggest venture yet in Las Vegas, the decision to gamble on PC technology appears to be paying off.

Daniel Lyons is a free-lance writer based in Ann Arbor, Mich.

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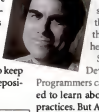
DEVELOPERS' ADVOCATE · KEVIN STREHLO

Repeatable practice makes for perfect app dev success

IT WASN'T EASY for Alex Cone, being the principal centralized application development resource in a company as decentralized as the French Resistance.

Like de Gaulle and company, Alex and his little band of compatriots in New Jersey were fighting the good fight. Their enemy was chaos; resources were scarce. Alex managed to buy a license for software that would alleviate one of Lehman Bros. Inc.'s more serious deficiencies in application development. But then he spent two months scrounging server hardware to host a pilot test.

Once he had the tool up and running, he intended to set up replication to keep his New York repository in sync with repositories in Hong Kong and London.



But the WAN was close to saturation. There was a chance the bandwidth wouldn't be there. And there'd be nothing he could do.

So Alex broadcast word of a Developers' Day in Manhattan. Programmers came from all over. They wanted to learn about new tools and share best practices. But Alex was not their boss. Many left after the midday pizza break to get back to work. It was a small skirmish, but Alex clearly won that day despite early departures.

It put him one step closer to making Lehman Bros.' application development practices repeatable — at least the good ones. Maybe it encouraged a little code sharing and reuse. Maybe it moved every programming team closer to the productivity of the best teams out in the divisions and departments.

Alex knows the benefits are there. In 1994, the Software Engineering Institute (SEI) reported the following for selected process improvement efforts: schedule slip reduced 70 percent with a 9 percent to 67 percent productivity gain, a 5 percent to 25 percent gain in early bug detection, and a 15 percent to 23 percent reduction in release cycles. It also reported 50 percent to 70 percent more bugs detected prior to test, as much as 94 percent bug reduction in released software, and an approximately 70 percent reduction in maintenance costs.

And it wasn't as if the people allocating budgets gave Alex less than he asked for because they thought SEI was biased, being as he was the promulgator of the Capability Maturity Model (CMM) for software development organizations.

Indeed, one thing everyone must take to heart from the SEI's message: Progress will be slow and the path uncertain. It can take a shop two years or more to move from the chaos of CMM Level One to the promise of Level Two: repeatable successes.

And no one can chart the course for you. Each case is different. Some paths lead nowhere. Then there were pressing demands of business. Sure, the numbers looked promising. Someone somewhere once said you get two dollars of productivity improvement for every CMM dollar spent. But pinning down return on investment is tough. And when that pressing demand came to shove you dodged the oncoming blow instinctively rather than holding ground.

Some of the programmers who stayed for the end of Developers' Day at Lehman Bros. were clearly hungry for whatever Alex could give them. One, asked by a vendor if he had any questions about a tool that Alex was making available to all the scattered Lehman programmers, said, no, he didn't.

"As long as we decide this is the way we're going to do it, I don't care how it works. I'm just happy we're finally doing something," the programmer said. Alex Cone is finally doing something.

This column is dedicated to helping all the Alex Cones do enough to make a difference.

Kevin Strehlo is director of product marketing at Continuous Software Corp., in Irvine, Calif., and a former executive editor at InfoWorld. *Write to him at kstrehlo@mcimail.com.*

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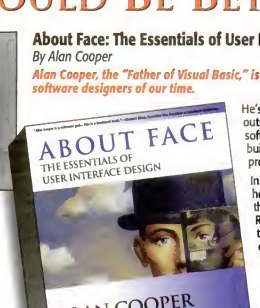

He's also one of the most outspoken critics of how the software industry goes about building the interface between products and people.

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- *Consistency is not necessarily a virtue*
- *Don't make the user look stupid*
- *Purchase the right software, then buy the computer that runs it*
- *Imagine users as very intelligent but very busy*
- *Hide the ejector seat levers*
- *Make everything reversible*
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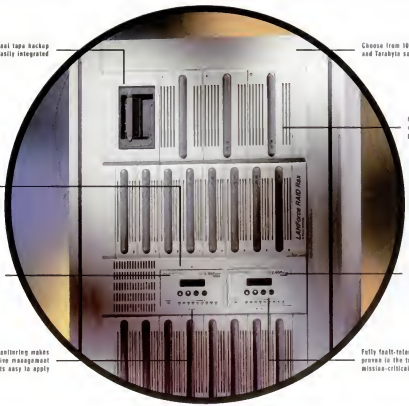

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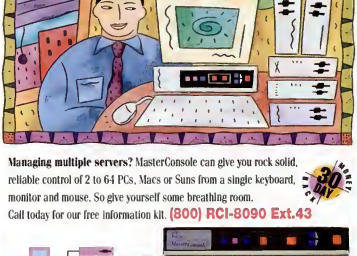

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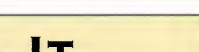

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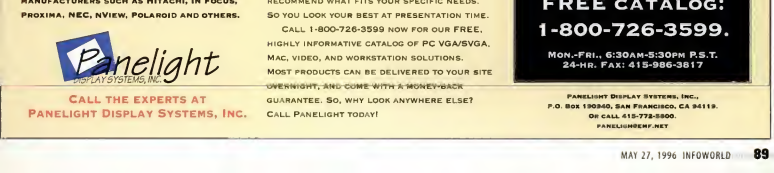

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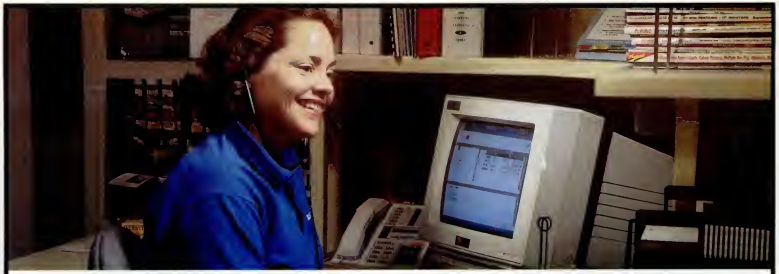

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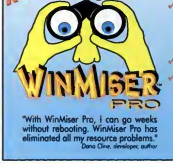

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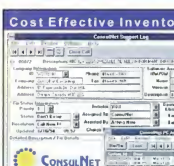

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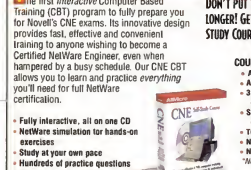

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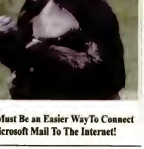

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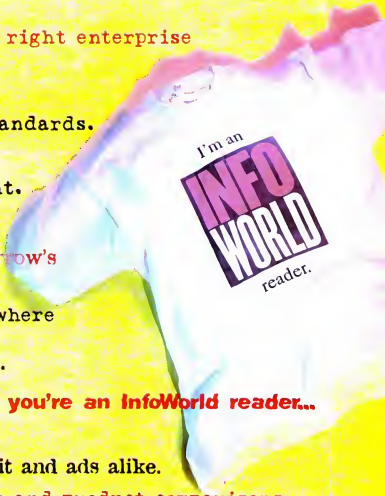

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PRODUCT COMPARISON *ENTERPRISE PROJECT MANAGEMENT:* Controlling massive schedules used to be the main thrust of project management applications, but either you had to be an expert in high-end tools, or the low-end programs left you flat. We look at solutions that combine the strongest tools for the gurus and practical tools for project helpers to make the enterprise combination just right. The products include Digital Tools Inc.'s AutoPlan II 3.0, Microsoft Corp.'s Microsoft Project 4.0 used with Micro-Frame Technologies Inc.'s Project Server 4.2, and Primavera Systems Inc.'s SureTrak 1.5 and Primavera Project Planner 1.1.

JUNE 10 ENTERPRISE *FEATURE:* On-line analytical processing (OLAP) may just be picking up speed, but a new kind of architecture is looming around the corner. It's called Relational OLAP, and the companies that make it say its power derives from a special engine that allows the software to access relational databases directly, speeding up the process and gaining access to much larger databases. Is Relational OLAP right for your business?

PRODUCT COMPARISON *NETWORK PRINTERS:* When you're shopping for an office printer, you probably base your decision on three things: price, speed, and output quality. With these criteria (and a few others) in mind, we look at five midrange monochrome options that print between 16 and 24 pages per minute and offer at least 600-by-600-dpi resolution: Dataproducts Corp.'s Typhoon16, Hewlett-Packard Co.'s HP 5Si MX, Lexmark International Inc.'s Optra Lsi+, QMS Corp.'s QMS 2425, and Xerox Corp.'s DocuPrint 4517mp.

IN FUTURE ISSUES ENTERPRISE *FEATURE:* As more and more businesses open their doors to Internet access, marketing, and commerce, security is becoming an increasing concern. We look at how security auditing can help identify potential holes in your network's armor.

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▸ Network operating systems

Novell, Microsoft redesign NOSes

Continued from page 1

NOSes, and it will probably be a few years before we see a dramatic new offering from either camp.

The basic operating systems themselves are pretty different at this point. NetWare is less mature than NT as an application server; Novell's focus for the past few years has been on directory services and the implementation of symmetrical multiprocessing (SMP).

Microsoft, on the other hand, has opted to postpone directory services in favor of application and internet support. It has created a strong multipurpose operating system with excellent SMP support and numerous applications that really use the architecture.

Green River, still in early beta, features a new NetWare Directory Services manager, called NDS Manager, a graphical utility to ease administration and repair of NDS partitions. Out-of-sync replicas are obvious at a glance and easy to repair. NDS Manager also shows the versions of NDS running on each server and can update all out-of-date servers.

THE NEW FACE *of NetWare: Green River offers a gussied-up graphical 32-bit NWAdmin.*

In addition to NDS Manager, Green River embraces the 1990s with an all-new 32-bit NWAdmin utility. Unlike previous versions, it allows you to browse and edit multiple trees at once — a much-needed feature in larger networks. It's very configurable and flexible, and administrators' settings are stored in their user object in the NDS tree — so a familiar setup can be seen, even on an unfamiliar workstation.

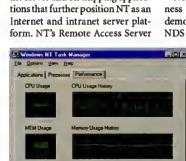
I really liked NWAdmin's improved editing capabilities, which allowed me to do bulk updates on multiple users or containers, such as changing their location. Unfortunately, NWAdmin required Windows 95 and didn't run on Windows NT 3.51 or Beta 2 of 4.0. (Novell says NWAdmin will run on its client for Windows 95.)

Unlike Green River, NT 4.0's administration is apparently not slated for improvement until the much-hyped Cairo appears sometime later this century. The only real difference from version 3.51 is the Administration Wizards. Although they will probably never be used in larger shops, they're a boon for novice administrators, offering step-by-step guidance on common administrative tasks.

BETA

NT 4.0 is basically a cosmetic upgrade that adds Internet capabilities to Version 3.51. Although there have been bug fixes and performance improvements, the fundamental operating system remains the same, just as Novell's has.

The Windows 95 look is a welcome replacement for NT's much-hated Program Manager. It offers a tab-based window that reports on applications, processes, and memory and CPU utilization. It even let me change the priority of running processes — something I've longed for in NT 3.51.



WINDOWS NT'S *new Task Manager lets you monitor and tweak server performance.*

Perhaps the two most notable changes other than the interface are the addition of Distributed Common Object Model — a technology that looks interesting but has little practical impact today — and the video drivers' move to unprotected kernel memory. This move makes sense in NT Workstation, but not in NT Server; to preserve the common driver model, Microsoft has compromised NT Server's stability for NT Workstation's performance.

Microsoft has decided to focus on improving the overall interface of the server and on shipping applications that further position NT as an Internet and intranet server platform. NT's Remote Access Server gains multilink channel aggregation, a mouth-bending term for inverse multiplexing, which allows multiple, slower connections to appear as a single, faster connection. Internet Information Server (IIS) 2.0 is also included, with markedly better performance than 1.0.

Also, Microsoft includes a new Domain Name Service (DNS) server that is vastly better than the malformed offering included with the Resource Kit for NT 3.51. The new DNS server is very usable and easy to administer with a graphic utility.

Novell, on the other hand, hasn't yet decided how much of a TCP/IP implementation to include in the next release of NetWare. The beta includes full TCP/IP support for both server and clients, as well as a full-featured DNS server, but Novell hasn't yet decided whether or not to include Web or File Transfer Protocol servers. NetWare File Services (NFS) support will be an additional product — leaving NetWare in the odd position of shipping with NFS namespace support, a full TCP/IP implementation, and yet no NFS server or client capabilities.

It will be possible to run IP-only NetWare networks with Green River. For these networks, Novell has created the redundant-sounding Domain Service Server (DSS), which obviates service advertising packets (SAPs). Instead of broadcasting SAPs, network resources need only register themselves with the DSS. When a client needs a resource, it talks to the DSS to find the correct address.

Novell's newfound competitiveness was highlighted with its demonstration of a unidirectional NDS client running on NT 3.51 at last week's Green River Beta Workshop. This nifty set of NT services allows user accounts to be created, modified, and deleted from within NWAdmin. The NT domain simply showed up as a container in the NDS tree, just as any workgroup would. And, for the first time, Novell has managed to counter Microsoft's NetWare-to-NT tools with migration tools of its own.

Oddly, Windows NT 4.0 Beta 2 was less stable than Beta 1 (see Product Reviews, Feb. 12, page 93) when running on the ALR Revolution Quad6 server, from Advanced Logic Research Inc., which won last week's comparison. (See Product Comparison, May 20, page 78). I found several severe memory leaks that ate up all available system memory in a matter of seconds and then crashed the system. Other times, NT refused to boot because it claimed that the Last Known Good menu had gone bad. Both of these problems could be attributable to beta device drivers.

NT's installation has improved somewhat from Version 3.51. The CD supposedly meets the El Torito standard for bootable CDs, but it crashed the El Torito-aware computers, so I had to create boot floppies. The IIS install isn't yet integrated, but the normal install leaves an IIS Setup icon on the desktop.

NetWare's install is much improved from that of Version 4.1 but still lags behind NT's in user friendliness. For the first time, NetWare's install program detects installed network cards and disk controllers and installs the right driver.

Green River adds support for PCI and multiple-bus-based systems by assigning every adapter card in the system a unique hardware identification number. Drivers use this to refer to cards regardless of which bus they're on. Unfortunately, this breaks all old drivers except those for standard, "non-plug-and-pray" ISA cards. Novell says that it will have a "critical mass" of drivers available when Green River ships; even the pre-beta that I used came with all the drivers I needed.

Brooks Talley is a technology analyst at InfoWorld. *Send him e-mail at brooks_talley@infoworld.com.*

THE BOTTOM LINE

Windows NT Server 4.0, Beta 2

A new interface and new Internet features make Beta 2 worthwhile, but Windows NT won't be going much further without real directory services.
Pros: Useful interface; Internet Information Server 2.0; Domain Name Service Server.
Cons: Stability woes; no real directory service.
***Microsoft Corp.**, Redmond, Wash.; (800) 426-9400, (206) 882-8080; fax: (206) 936-7329; http://www.microsoft.com.*
***Price:** Not announced.*
***Ship date:** Summer 1996.*

THE BOTTOM LINE

Novell NetWare Green River

Finally, NetWare Directory Services (NDS) works well enough for Novell to concentrate on administration and application issues. NetWare might not be as glitzy as Windows NT today, but the foundation is more solid.
Pros: Improved NDS and administration tools; easy installation; built-in IP support.
Cons: Breaks old drivers; uncertain Internet bundling; lack of NT support.
***Novell Inc.**, Provo, Utah; (800) 638-9273, (801) 429-7000; http://www.novell.com.*
***Price:** Not announced.*
***Ship date:** Second half of 1996.*

▸Windows NT network suite

BackOffice marries servers into tightly knit suite

■ Six servers working as one is a head-to-head match for some users

By Jeff Senna

IF YOU'RE CONSIDERING a complete integrated Microsoft Windows NT-based network suite as an enterprise solution, look no further than Microsoft BackOffice 2.0, especially if you are currently using Version 1.5.

BackOffice 2.0 can easily coexist in your existing environment. In fact, it will build on existing network functionality. But be warned: Although BackOffice start-up costs are very reasonable, with Microsoft Corp.'s flexible pricing scheme, the hidden costs include an adequate high-end server platform and third-party add-ons for some connectivity — depending on your current needs and user base.

Something old

BackOffice 2.0 still rests entirely on Windows NT Server (in this case, Version 3.51), which serves as the foundation for each of the server or client applications.

As a network operating system, NT Server lends itself well to third-party client/server-based application development — only part of what makes BackOffice so appealing.

Something new

Microsoft has expanded BackOffice by adding Internet Information Server (IIS) 1.0 (see Product Reviews, Feb. 26, page 97), replacing Mail Server 3.51 with Exchange Server 4.0 (see Product Reviews, April 8, page 87), and upgrading SQL Server 6.0 to Version 6.5 (see Product Reviews, Feb. 5, page 93).

Although unchanged from BackOffice 1.5, Systems Network Architecture (SNA) Server 2.11 and Systems Management Server (SMS) 1.1 complete the package.

Something borrowed

BackOffice truly shines as an integrated solution — with one caveat: True integration is possible as long as it's NT Server-based. With this common thread, you get a powerful platform open for third-party development — as long as it uses the 32-bit Windows API and conforms to the Microsoft BackOffice logo program criteria.

NT Server provides the common administration tools for each of the BackOffice applications. For example, you create users and groups that initiate the log-in processes for each application service, so users can forego logging in to each application separately. NT Server manages each application as a service that can be started or stopped within the Control Panel and overseen from the Events Viewer.

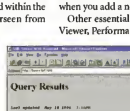
After completing the full installation (now handled by a single installation application), I created new users and user groups — a step that's necessary only if you're installing a completely new system. I quickly discovered how well the components work together.

Microsoft NT Server 3.51 can integrate any application that can run as an NT service. An excellent example of this is the User Manager for Domains, which allows network administrators a plethora of user- and group-configuration capabilities as well as specific global-standards and advanced-rights capabilities.

Once configured, attributes can transcend across multiple services — whether part of BackOffice or third-party tools — running on the domain. This provides a simple approach to centralized management of users and groups without the need for redundant administration.

Moreover, a specific user doesn't necessarily need to be an individual user; it could be a resource that initiates a service, for example. User Manager for Domains also creates all the necessary accounts and fills in the appropriate information for each server in the BackOffice suite when you add a new user.

Other essential NT tools, Events Viewer, Performance Monitor, and Network Monitor Agent, provide similar global functionality.



THE SQL SERVER WEB ASSISTANT *makes it easy to serve dynamic data to the Internet.*

And something blue

All this integration means that installing BackOffice applications to Windows NT Server is more like adding on extensions to the operating system than creating multiple separate servers.

For example, SQL Server offers robust database management that not only works with IIS but also handles all of Microsoft SMS' network management data. And SNA easily connects NT Server to host-based systems, such as IBM's mainframe and midrange AS/400 systems, allowing you to use legacy database information via ODBC/DRDA driver connectivity. You can even replace that obtrusive terminal by installing BackOffice-compliant terminal emulation products from a list of third-party providers.

If your current network environment is structured using a network operating system such as Novell Inc.'s NetWare, BackOffice is more an enhancement than a replacement. For example, if you plan on keeping NetWare file and print services on NetWare but want to use IIS' features along with SQL Server for database publishing over the Internet, you would install the NetWare Gateway software to add IPX/SPX support.

Similarly, you can offer file and print services to AppleTalk clients with Services for Macintosh. NetBEUI transport protocol provides peer-to-peer networking for Windows for Workgroups.

BackOffice also has support for additional communication services such as Point to Point Protocol and Remote Access Server protocols; TCP/IP and Domain Name Service; and FTP (File Transfer Protocol) and Telnet (with third-party network file system server software).

Many corporations have invested large amounts of money and resources to legacy mainframe and minicomputer environments. BackOffice preserves that investment, with two applets for testing mainframe or minihost connectivity. Unfortunately, you'll need third-party client software to access your host directly from the PC, but between SNA and IIS you can publish data on the host system — in much the same manner as you would SQL Server data.

Commitment to a platform

To unleash the power that BackOffice provides you'll need a high-end server. I used a pre-configured Compaq Computer Corp. Proliant 4500 5/133SE. The base-model system I used for testing, with 32MB of RAM, a 512KB cache per CPU, a NetFlex-3 network interface card, and a 4X CD-ROM drive, had an estimated street price of $12,132.

Microsoft recommends a minimum of 32MB of RAM; however, you may find you need more, depending on your traffic. I tried installing BackOffice 1.5 to a generic 100-MHz Pentium with 32MB of RAM and had disastrous results.

Running BackOffice on a system that has a minimum amount of memory won't cut it — plain and simple. As with all Microsoft products, you'll need the best performing machine you can afford with the maximum amount of memory installed for best performance. With higher traffic networks, you may want to dedicate servers to those network components that require the most resources — such as Exchange or SQL Server.

Microsoft offers two different licensing schemes for BackOffice. You can buy client licenses on a per-seat basis or site licenses on a per-server basis (except for Microsoft SMS, which is sold per-seat only). Both models have advantages.

For example, if multiple servers are deployed with hundreds of potential clients accessing BackOffice applications, a per-seat model is more cost-effective, because the server won't prevent concurrent users from accessing BackOffice applications as long as there are licenses. However, the per-server model is more cost-effective when some clients only need occasional access, such as remote users.

A future together

At least one upgrade to BackOffice is in the works: Windows NT 4.0 (both Server and Workstation), with IIS built in — will replace 3.51 when it ships. The IIS integration offers some interesting new capabilities — especially for providing peer-to-peer intranet functions among workgroups. An update to SMS is also in the works.

Jeff Senna is a technology analyst at InfoWorld. His Internet address is jeff_senna@infoworld.com.

New features in BackOffice 2.0

- **Integrated client and server installation/setup** provides a simple method for adding or removing components.
- **Internet Information Server 1.0** provides Web access, FTP (File Transfer Protocol), Gopher services, Internet Database Connector (ODBC gateway), Internet Service Manager for remote administration, Secure Sockets Layer, and Internet Explorer 2.0.
- **Exchange Server 4.0** replaces Mail Server 3.51, providing better integration and messaging capabilities. It includes Exchange clients for MS-DOS, Windows 3.1 (and later), NT Workstation, and Windows 95 desktops.
- Integrates with **Schedule +** and also includes **Exchange**.
- **Forms designer** for building custom groupware applications.
- **SQL Server 6.5** replaces 6.0 and supports any ODBC-compliant application, such as Access, Sybase, Oracle, and IBM DB2. Of the many major enhancements, Version 6.5 now provides a Web Assistant that creates HTML pages from SQL databases with automatic updating when changes to database information occur.

What's in Microsoft BackOffice 2.0

- Windows NT Server 3.51 with Service Pack 4
- Microsoft Exchange Server 4.0
- Internet Information Server 1.0
- Systems Network Architecture Server 2.11 with Service Pack 1
- Microsoft SQL Server 6.5
- Systems Management Server 1.1

THE BOTTOM LINE

Microsoft BackOffice 2.0

FOR BACKOFFICE 1.5 users, upgrading to Version 2.0 is strongly recommended. Potential new users may also consider the suite for its easy integration and capability to coexist with current network architectures. The new messaging and Internet capabilities will be enticing for small to midsize companies, while the mainframe connectivity will entice legacy sites. (It comes at a price, though.)

Pros: Better integration within network and client applications; includes robust Internet and intranet capabilities; capable of coexisting with most network environments.

Cons: Requires a strong hardware commitment; requires a strong commitment to Microsoft's network architecture; connectivity issues require third-party software.

Microsoft Corp., *Redmond, Wash.; (800) 426-9400, (206) 882-8080; fax: (206) 936-7329; http://www.microsoft.com.*

Price: *$23,663 for two servers and 100-client configuration.*

Platforms: *Client: DOS, Windows 3.x, Windows 95, Windows NT, MacOS; Server: Windows NT Server 3.51.*

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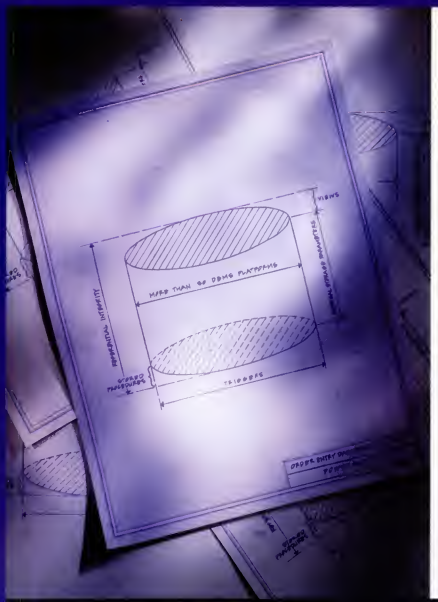

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▸ Windows 95 CD-ROM cache

Great CD-ROM speed-up ... sometimes

■ Caching software a solution for a limited audience

By Jeffrey Gordon Angus

IF YOUR WINDOWS 95 users are telling you they need better CD-ROM speed, Quarterdeck Corp.'s new SpeedyROM 1.0 utility may be a better solution than buying new, higher speed CD-ROM drives. But it may not be.

The program is intelligently designed and well-rendered. After a simple installation, you tell SpeedyROM the hard drive on which you want to set up a cache and the size you want it to be. The documentation recommends 20MB as a minimum, but a slider control gives you the opportunity to select as large a size as is available. The documentation says the utility works with compressed drives as well, but I didn't test this.

THE BOTTOM LINE

SpeedyROM 1.0

HOT

COLD

SpeedyROM is basically a CD-ROM cache with some spiffy technology that speeds access in specific circumstances.

Pros: Intelligent self-adjusting behavior; good layering that supports novice and advanced users at the same time.

Cons: Doesn't support 16-bit CD-ROM drivers or DOS-mode programs.

Quarterdeck Corp., Marina del Rey, Calif.; (310) 309-3700; info@quarterdeck.com; http://www.quarterdeck.com/.
Price: *$39.95*
Platform: *Windows 95.*

You also optimize the cache for the hardware you have in your machine, specifying a rotation speed (single-, dual-, or six-speed); if you specify something different from your hardware, the utility figures it out over time and resets itself. This is a great feature that frees you from having to install on every desktop. Even if novice users install it at the wrong speed, they'll eventually get the speed boost.

The cache on the hard drive then holds frequently accessed data from various CD-ROMs. This speeds access to the information in the cache, because even the most ordinary hard drive outperforms the most expensive contemporary CD-ROM drive. Cleverly, SpeedyROM also catalogs multiple discs, so it knows where in its cache to look for data.

But SpeedyROM won't meet everybody's CD-ROM speed needs. It's a Windows 95-only product and requires a 32-bit driver. (Getting Windows 95 to recognize the drivers can be a problem.)

SpeedyROM also works with Windows 3.x and DOS programs, but only under Windows 95 — losing the game-playing market and some multimedia users.

SpeedyROM worked well with corporate databases in a Pareto distribution (about 20 percent of the records are the ones called about 80 percent of the time).

SPEEDYROM *lets you set its cache as large as the available space on your hard drive.*

For databases with more random distribution, the advantages were slight.

SpeedyROM also worked extremely well with Windows 95-native multimedia discs. On a 66-MHz 486 with 16MB of RAM and a dual-speed CD-ROM drive, Microsoft Corp.'s Cinemania 96 usually takes 14 seconds to load. It took that long to load the first time SpeedyROM was activated, but after that it only took about 6 seconds, even when several other titles were loaded before it was reloaded.

For Windows 95 users with lots of spare disk space who usually run multimedia titles or databases with Pareto hit patterns, SpeedyROM is a big winner. For others, there are fewer gains to be had.

Jeffrey Gordon Angus is a business consultant and systems analyst for the DataWorks Ltd., in Seattle. His Internet address is jeff_angus@infoworld.com.

▸ PD/CD-ROM drive

Phase-change technology offers hard-disk speed

By Andre Kvitka

I WOULDN'T BE surprised if dual-function CD drives, also known as PD/CDs or PD drives, replace standard CD drives in the near future. PD drives have a tray that accepts standard CDs and proprietary PD cartridges for data storage. The cartridges are five-sixteenths-inch-thick plastic cases with an optical disc inside that is the same size as conventional CDs.

The PD technology is touted by many as the most reliable storage solution around, and, after testing such a device from Panasonic Computer Peripheral Co., the Panasonic PD/CD-ROM drive (Model LF-1004ABK), I must agree.

PD drives rely on phase-change technology developed by Panasonic's parent company, Matsushita Electric Industrial Co., which offers some speed advantages over standard CD-ROM readers.

A standard CD has data spiraling from the center out. To read the data, the drive must maintain constant linear velocity to keep the data streaming under the laser. This hurts random access, because the drive must change its rotational rate to move from place to place, spinning down, then up again, as the optical head's location on the platter changes. A PD drive works like a hard drive, as the mechanism is always spinning at a constant rpm. It plays standard CDs at quad-speed.

THE BOTTOM LINE

Panasonic PD/CD-ROM drive (Model LF-1004ABK)

HOT

COLD

The Panasonic PD/CD-ROM drive is a simple and effective way to store images and databases. It can also be used as a backup device and doubles as a quad-speed CD-ROM drive.

Pros: Simple installation and configuration; affordable.

Cons: None significant.

Panasonic Computer Peripheral Co., Secaucus, N.J.; (800) 742-8086, (201) 348-7000; http://www.panasonic.com.
Price: *$599.95 ($499.95 without SCSI adapter); cartridges cost $59.95.*
Platforms: *DOS, Windows 3.x, Windows 95, Windows NT, OS/2, Macintosh.*

The internal unit I tested was a SCSI device. The package also contained an Adaptec AVA-1502I SCSI host adapter, a couple of lean installation manuals for each OS, and one cartridge.

Installation was as simple as popping the card into my machine and starting up; Windows 95 auto-detected the drive, and I was set.

One cartridge holds as much as 650MB, which translates to about 9 cents per megabyte. I could write data to the cartridge as if it were a hard drive, adding new files at any time. I didn't need special utilities, either; I just used Windows Explorer to copy files and directories to it.

I copied 160MB of data files from my C: drive to the cartridge in 10 minutes, 26 seconds — pretty good for an optical disc. I then dragged and dropped files and directories around on the cartridge to get a sense of speed. It was acceptably fast, if not blazingly so.

Andre Kvitka is a technology analyst at InfoWorld. *His Internet address is andre_kvitka@infoworld.com.*

▸ Removable media hardware

Jaz puts a gigabyte in your pocket

By Jeff Senna

IOMEGA CORP. has beat its closest competition, SyQuest Technology Inc., in the race to see who could get the biggest, most inexpensive removable mass storage units to market. The Iomega Jaz Drive is, in one word, impressive.

I looked at the portable SCSI version of the Jaz, which includes a cartridge containing Jaz Tools software, an adapter that provides connectivity to a Macintosh, and a SCSI cable.

Like those of SyQuest's EZ Drive, the cartridges are based on Winchester technology. They're small — roughly the size of a fat 3.5-inch disk. Unlike EZ Drive, the Jaz can hold as much as 1,080KB of data when formatted on a PC.

Iomega boasts that the Jaz has an average seek time of 12 milliseconds with a maximum sustained transfer rate of 6.73MBps. It features a 256KB read/write buffer and spins at 5,400 rpm, rivaling most fast hard drives.

I compared the Jaz's file copying speed with that of an Iomega Zip drive and SyQuest's EZ Drive — until now, two of the most popular removable disk drives on the market. The EZ Drive was slightly faster than the Jaz, and the Zip lagged well behind both of them.

The Jaz Jet PCI-to-Fast SCSI host adapter improved performance by about 15 percent.

For about $99, the Jaz Jet provides Plug and Play SCSI, with the capability to boot multiple operating systems from Jaz disks.

As expected, the drive worked wonderfully on my Power Macintosh. A small quibble: Unlike the EZ Drive or most Macintosh hardware, a Jaz extension needs to be loaded for the drive to be recognized.

THE BOTTOM LINE

Iomega Jaz Drive

HOT

COLD

Iomega has finally shipped its big brother to the Zip drive. Jaz, which delivers a gigabyte of removable data with exceptional performance. It's very light, fast, portable, and attractive but, unfortunately, hard to find. If you're lucky enough to find one, go for it. It's definitely worth the search and the money.

Pros: Inexpensive removable mass storage for multiple platforms, including NetWare and Unix; fast enough to run applications or boot multiple operating systems; can select any SCSI ID; auto-termination capable.

Cons: Currently difficult to find in retail channels.

Iomega Corp., Roy, Utah; (800) 697-8833, (801) 778-1000; http://www.iomega.com.
Price: *$499 estimated street; 1GB cartridges: $99; Jaz Jet SCSI adapter for the PC: $99.*
Platforms: *Windows 3.x, Windows 95, Windows NT, OS/2 Warp, Macintosh, Unix, NetWare.*

I had some difficulty copying large files under Windows NT. The Jaz could copy as much as 254MB of data before crashing.

The fix is easy enough: Create the partition and set it active using Windows NT's Disk Administrator; after you reboot, you can format the disk using file allocation tables or even the Windows NT File System. Iomega recommends using its formatting tools, rather than your OS's, for multiple-platform use.

If you'd like the extra space for multimedia, or even if you're just a pack rat, the Jaz is definitely your tune.

Jeff Senna is a technology analyst at InfoWorld. *His Internet address is jeff_senna@infoworld.com.*

▸ Project management system

Open Plan Professional delivers planning power

By Mike Heck

OPEN PLAN Professional 1.1, from Welcom Software Technology Inc., is designed for full-time professional project managers who run many concurrent projects that must be updated by different users.

The software offers plentiful project views, including Network Logic, Bar Chart, Histograms, Spreadsheet, Tabular, and Work Breakdown Structure formats. All are interactively linked to a common database, so you can enter and update data in the most convenient format.

Furthermore, this 32-bit application uses many Windows technologies, including OLE 2.0 and OLE Automation, so you can extend the product and integrate it with other applications.

OPEN PLAN PROFESSIONAL 1.1'S *simple notebook interface holds resource and schedule data.*

Information is stored in Open Plan's dBase-compatible files or in a variety of ODBC database formats — Microsoft Corp.'s FoxPro, Access, or SQL Server; Oracle; and Sybase — which are all protected by a security system.

Open Plan is a multiuser application, so several users can simultaneously work on the same project or ancillary files. To reduce network bottlenecks, the software employs what is called "optimistic concurrency," a process that anticipates which files will be required so that they are more readily available.

Open Plan is built around a Project Notebook interface, which lessens the anxiety level during project planning. I dragged and dropped projects, resources, and other elements into folders. The notebook speeds the planning process for small schedules but can actually be confusing with large jobs.

Open Plan let me construct one large plan or break projects into a hierarchy of subprojects. In the second case, I was able to roll up subprojects to get a high-level view of my entire schedule. Interproject relationships and shared-resource pools enabled cross-project resource analysis.

THE BOTTOM LINE

Open Plan Professional 1.1

BUY

Open Plan Professional is initially easier to use than other high-end project management packages, and it has its share of sophisticated planning functions — plus there's an even easier-to-use companion desktop package. But neither application can easily share information across the entire enterprise.

HOLD

Pros: Multiple interactive views for entering and examining project data; easy organization of projects, resources, and organizational codes through a notebook interface; training simplified by Clipnotes feature; multiuser access to data, which is held in ODBC databases.

Cons: No true report generator; notebook unwieldy with large projects.

Welcom Software Technology Inc., *Houston; (800) 274-4978, (713) 558-0514; http://www.wst.com.*

Price: *$6,000*

Platforms: *Windows 3.1, Windows 95.*

Most on-screen views, such as cost curves, are easy to change and print.

Open Plan also provides earned-value and what-if analysis. However, sophisticated report writing is not available without a third-party report generator.

Although these features are fairly common among high-end project management tools, Open Plan also has a few uncommon functions, such as risk analysis with a Monte Carlo simulation.

Moreover, Welcom's Project Manager Director helps you implement project management practices beyond traditional scheduling. These templates guide you through quality control, human resources, procurement, and risk issues, as well as other situations.

Welcom's Open Plan Desktop, a companion product, uses the same reporting views, project data, and resource and code files as the professional package.

Mike Heck, an InfoWorld *contributing editor, is manager of electronic promotions for Unisys Corp., in Blue Bell, Pa. His Internet address is mike_heck@infoworld.com.*

▸ Project management system

Planisware handles distributed planning with panache

By Mike Heck

YOU MAY NOT RECOGNIZE the OPX2 name; it's mainly a European product originally developed by the Thomson-CSF group for its own use. Yet OPX2, Planisware SA's high-end project-management software, has a good international following, including the rocket-launching company Ariane and large companies in pharmaceuticals, research and development, utilities, and the automobile industry.

OPX2 is forward-looking ideas, which apply to large or multinational projects, are unmatched by other high-end project management software. Running on Unix servers (and soon on Windows NT) and centered on a SQL relational database, OPX2 offers features not found in other packages.

The first difference I noticed is that OPX2 doesn't focus on providing a better Gantt chart or spreadsheet, which is the approach of most high-end project-management tools. Instead, OPX2's scheduling kernel is surrounded by five modules, including Cost, Team Management, and Reporting.

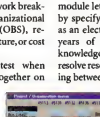
For the project manager, the client side of OPX2 (which runs on Unix workstations or on PCs and Macintosh systems running an X Windows emulation) appears much like a contemporary graphical project manager. You start by organizing projects and tasks in a treelike structure according to work breakdown structure, organizational breakdown structure (OBS), resource breakdown structure, or cost breakdown structure.

OPX2 shines brightest when many users, working together on multiple projects, share resources and cost codes. In this situation, the software arranges the central project database according to OBS or other rules. OPX2 accomplishes this complex task with a decidedly simple workspace concept in which users "check out" the appropriate project blocks (which appear in a clear matrix), then make the appropriate changes.

Those project updates are almost instantly posted and indicated on the Organization Matrix display (the checkout board), so managers see changes performed by other users as they occur.

Like any good project manager, OPX2 accommodates the many factors that affect scheduling, such as activity calendars and variable resource availability.

Additionally, the OPX2 Team module lets you manage resources by specifying competencies, such as an electrical engineer with five years of experience. With that knowledge, the software can better resolve resource conflicts by switching between resources with similar skill sets, instead of overworking a particular person.



OPX2 INCORPORATES *a unique Organization Matrix display where you can "check out" different parts of a plan.*

An especially important display, the Time Limit Window, lets you interactively restrict resource leveling to a particular time frame. In this way, OPX2 produces the best optimization during the specified time period without affecting other parts of the schedule or connected plans.

Another of the more unusual features, called Tree-Do, extends the product's undo/redo command. A decision tree window shows nodes (representing parts of the plan) along with variables you choose, such as total cost or total duration. Changing a node from the current version to a previous state is done with a single mouse click.

Furthermore, a variance Gantt chart graphically reports the differences between the simulations.

OPX2 also works as a server for PC front ends, such as Scitor Corp.'s Project Scheduler 6 and Microsoft Corp.'s Microsoft Project. There's a fundamental difference, though, between OPX2 and Micro-Frame Technologies Inc.'s ProjectServer. OPX2 establishes a comprehensive link to project information residing in an Oracle database so you have true groupware functionality.

For example, OPX2 lets you resolve conflicts and consolidate departmental costs across multiple Project Scheduler 6-based projects. Yet it's possible to reuse projects developed by midrange project-management packages.

All this functionality doesn't come cheaply, however. A full OPX2 configuration with optional modules and licenses for 10 simultaneous users costs about $100,000. The OPX2 server, one complete OPX2 package (for administration), plus five Project Scheduler 6 or Microsoft Project packages prices out at about $25,000.

THE BOTTOM LINE

OPX2

BUY

OPX2 is a structured planning tool that lets you manage work to be done, responsibilities, resources, and costs. The program's client/server approach distributes the scheduling workload to the server. Utilities let you use desktop packages, such as Scitor Corp.'s Project Scheduler 6, as a front end to OPX2's Oracle database.

HOLD

Pros: Unique shared workspace lets multiple users work on the same project; includes cost-estimation, cost-control, reporting, team-scheduling, and resource-management modules; customizable import and export scenarios; multiple levels of undo and redo.

Cons: High cost.

Planisware SA, *Paris; 33 (1) 41 48 00 36; fax: 33 (1) 41 48 00 50; info@planisware.fr.*

Price: *$25,000 to $100,000.*

Platforms: *Server: Sun Sparc, HP9000, IBM RS/6000 Unix servers; Client: Windows 3.1, Windows 95, Windows NT, Macintosh, and Unix.*

Mike Heck is an InfoWorld *contributing editor. His Internet address is mike_heck@infoworld.com.*

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Stratus

▸Mac-to-PC file-transfer and disk-access tools

Optima Technology's XChange 1.2 is a questionable first release

■ Seriously limited product appears awkward compared to competitors' 6-month-old offerings

By Galen Gruman

OPTIMA TECHNOLOGY Corp.'s XChange 1.2 is too little, too late. Last fall, people working with both Windows 95 and the Macintosh bemoaned the lack of good Mac-to-PC file-transfer and disk-access tools.

Most of the first products didn't support Windows 95 native features, such as long file names and Explorer, and all of the PC-based products required users to run a file-transfer program to handle Mac media. You couldn't just have Mac disks appear on the desktop, in programs' Open and Save dialog boxes, or in Explorer or File Manager.

DataViz Inc., with its new MacOpener 2.0 (see review, below), and Software Architects Inc., with its new Here Is Now 2.0, offer that seamless access under Windows 95; both provided it in earlier versions under Windows 3.1.

Optima has entered the Mac-to-PC disk-exchange competition with a seriously limited product; it doesn't even offer seamless data access under Windows 3.x — something the competition has had for a couple of years. So Optima's product is already outmoded.

Optima's XChange 1.2 (despite the .2 in its name, it is the first released version) delivers basic file exchange. In the File Manager-like program, you select disks to be opened: floppies, SCSI hard drives, Iomega Corp.'s Zip and other removable drives, even tape drives (but only if you happen to use Optima's Mac tape formatter; the program doesn't support the format of the nearly universal Retrospect tape software from Dantz Development Corp.).

It's all very much like the Windows 3.1 File Manager: You copy files by dragging them from one window to another, delete them by clicking a trash-can icon (unlike in the real File Manager, pressing the Delete key has no effect), and rename them with a dialog box. When copying, you can decide whether to append a DOS extension to copied Mac files or to remove these extensions for PC files copied to a Mac disk. It's all very straightforward.

However, a few key features are not straightforward. For example, consider the awkward process of adding an extension to the extension map (a table that tells the Mac which icon to display for a particular file — say, an Excel icon for PC files with the .XLS extension — and which DOS extension to use for a specific kind of Mac file). XChange doesn't have a utility or option in the program to help you manage the extension maps. Instead, you need to edit an .INI file.

Another poor implementation is the documentation. The on-line help is just unhelpful. Rather than explain, it reiterates menu options. There's simply no depth or context. Worse, the on-line help has less information than the manual. For example, there's nothing on how to edit the extension maps in the on-line help, although there are a few basic paragraphs in the manual.

XChange 1.2 is simply behind the times. With better programs available at about the same price, why bother?

THE BOTTOM LINE

XChange 1.2

BUY

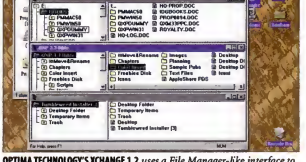
SKIP

Several utilities let you read PC disks on a Macintosh or Mac disks on a PC. XChange does the latter, but it makes you use a program to copy files, rather than simply using the Explorer, File Manager, or your program's Open and Save dialog boxes. Because the competition allows such seamless access to Mac data, there's no reason to use XChange's proprietary approach.

Pros: Familiar File Manager interface.

Cons: Awkward noninvisible copying and other file management; does not work from the Explorer or File Manager or within applications; does not work in DOS.

Optima Technology Corp., Irvine, Calif.; (714) 476-0515; fax (714) 476-0613; http://www.optimatech.com/optima/.
Price: *$49 estimated street.*
Platforms: *Windows 3.x, Windows 95.*



OPTIMA TECHNOLOGY'S XCHANGE 1.2 *uses a File Manager–like interface to copy files between Macintosh and PC media.*

Gruman is an executive editor at Macworld *and has covered publishing tools since 1986. His Internet address is gmgruman@macworld.com.*

▸File translation utility

DataViz's MacOpener, Version 2.0, is a one-trick pony

By Howard Millman

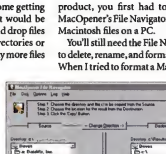
SHARING DATA between Macintoshes and PCs is a real pain in the disk drive. Apple, undoubtedly as a peace gesture, embeds DOS-to-Mac translation support into its OS, solving the problem for Mac users. DataViz Inc. says its MacOpener, Version 2.0, solves that cross-platform incompatibility for PC users, too.

It does, but just for a selected group of users. Why? Because MacOpener just translates a Macintosh file format into a PC file format. Although that lets you view the file's content, you cannot necessarily use it. What can you do if the same applications do not exist on both platforms? You'll need DataViz's $150 Conversions Plus (which includes all of MacOpener's functionality) to translate and convert the contents.

Any hesitations I have with using MacOpener concern the File Navigator, a two-panel interface that DataViz used to maintain backward compatibility. It takes some getting used to. For example, it would be nice if you could drag and drop files on their destination directories or resize the panes to display more files and directories.

One significant improvement over Version 1.0 (see Product Reviews, Dec. 25, 1995/ Jan. 1, page 72) is MacOpener's new virtual Windows driver, which remains active in the background. Windows 95 users can now access Macintosh files from the Desktop, Explorer, or any file manager. The driver translates the information on the fly, so the application thinks it is a disk with DOS files, and you can access the Macintosh files when an application does not let you use the File Navigator. With prior releases of the product, you first had to launch MacOpener's File Navigator to view Macintosh files on a PC.

You'll still need the File Navigator to delete, rename, and format a disk. When I tried to format a Macintosh disk by clicking the right mouse button on the A: drive icon, the machine made the right noises but gave me a DOS-formatted disk.



THE FILE NAVIGATOR *requires too much mousing around. It should support drag and drop.*

Aside from that minor inconvenience, the program worked well. Translation took mere seconds and worked every time. I really liked MacOpener's handy Preview function, which let me view graphics and text files before I translated them. In addition, MacOpener nimbly handled both the traditional DOS file names and Windows 95's long file names; it's one of the very few translation applications that can. Windows 3.1 users will still see their Mac file names shortened to the DOS naming convention.

MacOpener gives you the option of copying files as binary or text. A third option, MacBinary, preserves the Macintosh's two-part data and resource file format, which copies the file back to a Macintosh after modifications. MacOpener's extension mapping utility automatically links Macintosh file types and the file's application to DOS extensions. When it encounters an unknown file type, it asks you to manually link the file type to an extension. It can automatically add the right file extension to a file (for example, .TXT for a text file) or maintain the original file name.

Although its low street price will attract attention, I recommend spending the extra money for Conversions Plus. If you move files from a Macintosh to a PC, it's only a matter of time until you need the conversion capability.

Howard Millman, based in Croton, N.Y., operates the Data System Services Group, a networking and problem-solving consultancy. He can be reached at hmillman@mcimail.com.

THE BOTTOM LINE

MacOpener, Version 2.0

BUY

SKIP

MacOpener is a Mac-to-PC and-back-again utility that will copy, delete, rename, and view files.

Pros: Keeps long file names when transferring files from the Macintosh to Windows 95; works quickly.

Cons: Clunky interface, lacks conversion features.

DataViz Inc., Trumbull, Conn.; (800) 733-0030, (203) 268-0030; info@dataviz.com.
Price: *$75 list.*
Platforms: *Windows 3.1, Windows 95, Windows NT.*

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▸ Electronic document publishing system

Tumbleweed offers document fidelity, hyperlink tools

■ For a lower price, Tumbleweed is competitive alternative to Adobe's Acrobat

By Galen Gruman

WITH THE POPULARITY of both the Internet and intranets, portable-document software may get a second lease on life. Jumping on the bandwagon is Tumbleweed Software Corp., with Tumbleweed Publishing Essentials 1.0.

In 1993, when Adobe Systems Inc.'s Acrobat was first announced, digital documents that people could share, search, and link — while still seeing the content in the rich form of a laid-out document — were very appealing.

Novell Inc. followed Adobe by licensing the competing Envoy technology from Tumbleweed and making it a standard part of the collaboration-oriented Perfect-Office suite, which is now owned by Corel Corp.

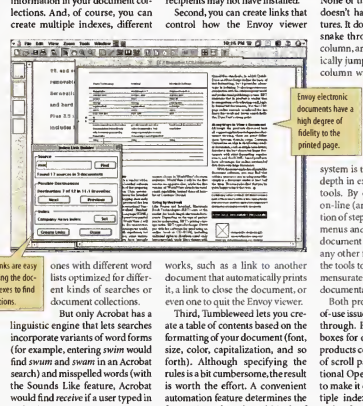
Today, although individual users seem to be ignoring portable-document technology, organizations continue to explore it for distribution of data formerly available only on paper. The Internal Revenue Service uses Acrobat Portable Data Format (PDF) files to distribute tax forms and manuals on the World Wide Web, and Apple Computer Inc. and other computer companies offer PDF files containing help and specifications. These companies usually offer text-only files as well, to save customers the high download and print times of PDF files.

Portable documents may make more sense on intranets, serving as shared repositories of textual and graphical information. They may also be appropriate for CD-based documentation or for electronic references in libraries.

Both Adobe and Tumbleweed are trying to make their portable-document technologies the industry standard, and Adobe has come close to doing just that.

Although Acrobat files are resource hogs, there's no widely accepted alternative. The Web's HTML is too primitive, and the more efficient and visually rich DigitalPaper format, from Common Ground Inc., has withered because a recent acquisition has effectively ended the continuing development of the company's Macintosh product. Because the majority of Web information is published with Macintosh programs, a Macintosh portable-document creation and management tool is critical. As Common Ground's product fades, Tumbleweed is trying to challenge Adobe. The company has fixed the poor font quality of its original products, thanks to the use of Bitstream Inc.'s TrueDoc font-embedding technology. And Tumbleweed's Envoy format marries the typographic realism of TrueDoc with small file sizes and good image realism.

Now Tumbleweed has released a tool to create portable documents — complete with interdocument hyperlinks and search indexes — intended to rival Adobe's $1,595 Acrobat for Workgroups suite. Tumbleweed is hoping its more efficient file format and its lower price ($695) will tip the balance in its favor. I tested that assumption with the Macintosh version of Tumbleweed Publishing Essentials, comparing it with Acrobat for Workgroups 2.1.



THE BOTTOM LINE

Tumbleweed Publishing Essentials 1.0

$695

COST

Strong navigation features and a low price make Tumbleweed Publishing Essentials a serious alternative to Adobe Systems Inc.'s Acrobat for Workgroups 2.1. Although the index-creation tools could be better, Tumbleweed offers table of contents creation unmatched by anything Adobe has.

Pros: Electronic documents accurately formatted; easy to create hypertext links within documents to other documents and to Web sites.

Cons: Poor documentation; somewhat limited indexing features.

Tumbleweed Software Corp., Redwood City, Calif.; (800) 696-1978, (415) 363-7022; fax: (415) 363-7024; http://www.twcorp.com.

***Price:* $695**

***Platforms:* Windows 3.1 (Windows 95 due this summer), Macintosh System 7.x.**

Index acrobatics

Tumbleweed indeed has a strong product, but it's no knock-out winner. Functionally, Acrobat offers a little more than Tumbleweed — but not necessarily $900 more.

Acrobat has the advantage in the area of indexing, which sets up the search terms that help users find relevant documents easily from their repository of portable documents. Both programs let you designate multiple directories to contain the source files that are indexed. Both let you omit words and numbers to keep the search focused on the key information in your document collections. And, of course, you can create multiple indexes, different ones with different word lists optimized for different kinds of searches or document collections.

But only Acrobat has a linguistic engine that lets searches incorporate variants of word forms (for example, entering *swim* would find *swum* and *swam* in an Acrobat search) and misspelled words (with the Sounds Like feature, Acrobat would find *receive* if a user typed in *recieve*).

Both programs let you update your indexes easily, but only Acrobat lets you schedule the updates, making it a hands-off operation once you've set it up. With Tumbleweed, you must manually run the index update. However, Tumbleweed does a few things Acrobat does not. For indexing, Acrobat is limited to DOS-style 11-character folder names (even on a Macintosh), whereas Tumbleweed can handle the longer names of the Macintosh and Windows 95. Both products let you search across multiple indexes at once.

Both programs go far beyond indexing: They can highlight text in portable documents (with an electronic marker or by adding sticky notes), create hyperlinks within and between documents, provide a thumbnail view of pages, add bookmarks so users can jump to text of specific interest to them, and create hyperlinks to Web sites.

Navigation niceties

In the critical area of document navigation, Tumbleweed has the edge. First, the ability to link to a Web site is built in; with Acrobat, you need to use a plug-in that your recipients may not have installed.

Second, you can create links that control how the Envoy viewer works, such as a link to another document that automatically prints it, a link to close the document, or even one to quit the Envoy viewer.

Third, Tumbleweed lets you create a table of contents based on the formatting of your document (font, size, color, capitalization, and so forth). Although specifying the rules is a bit cumbersome, the result is worth the effort. A convenient automation feature determines the formatting of a selected block of text, so you don't have to remember or enter all that formatting yourself.

TUMBLEWEED PUBLISHING ESSENTIALS *generates a table of contents based on Rule Sets.*

By comparison, Acrobat requires you to use its Bookmark feature to generate tables of contents, which is an extremely laborious process.

Fourth, in a spirit of automation also shown by the Table of Contents feature, Tumbleweed lets you replicate hypertext links on one page to a range of pages.

Fifth, you can use the indexes you've created for documents as an easy way to make hyperlinks from a document to one or more others. The Link Index feature will check all indexed documents for the occurrence of a word that you want to link to and then let you decide which links to those outside documents you want to create. As it finds each possible link, Tumbleweed shows you the destination text.

And sixth, Tumbleweed has a presentation-mode option. This turns your document into a slide show, which users just click through in sequence.

Jumping through hoops

None of this is to say that Acrobat doesn't have its own unique features. It does. For example, you can snake through a story column by column, and the program automatically jumps to the top of the next column when you've reached the bottom, which will save you some scrolling. There's a tool to summarize all the various notes that may be in a document.

Finally, Adobe's help system is truly helpful. It goes into depth in explaining how to use the tools. By contrast, Tumbleweed's on-line (and print) help is a recitation of steps to follow in the various menus and dialog boxes. Portable-document creation is as complex as any other form of publishing, and the tools to do the work need commensurately detailed, sophisticated documentation.

Both programs have some ease-of-use issues that need to be worked through. For example, the dialog boxes for creating indexes in both products could benefit from the use of scroll panes — as with a traditional Open or Save dialog box — to make it easier to work with multiple indexes, source directories, and so forth.

Both programs also need pop-up text labels for their array of similar icons — something akin to Microsoft's ToolTips, which appear when your mouse hovers over an icon for more than a second. With so many similar tools (several for searching, several for indexing, several for linking, etc.) a better system of organization, or at least better identification of the tools, would help people choose the appropriate options.

All in all, Tumbleweed Publishing Essentials is a strong set of tools for creating Web, CD, or.) intranet portable documents. Although its indexing features could be stronger, they'll meet the needs of most people. Its lower price and more dynamic capabilities should give Acrobat a run for its money.

Galen Gruman's Internet address is gmgruman@macworld.com.

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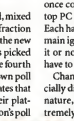
DOWN TO THE WIRE · NICHOLAS PETRELEY

Advice to 'write what you know' spells negative press for alternative OSes

OVER THE PAST few months, I've been inundated with requests to explain why the press is so mixed up about OS/2. The question so closely relates to last week's column about PC users who resist the wisdom of mainframes (see "A father-to-son talk about 'amateur' views of PCs and mainframes," May 20, page 117) that I finally decided to tackle it.

One thing is sure. We are, in general, mixed up. Windows NT Workstation sold a fraction of what OS/2 Warp sold last year, and the new Warp Server is booming. Our readers picked OS/2 as the Product of the Year for the fourth year running. On the downside, our own poll of a very small group of readers indicates that some OS/2 users are abandoning their platform, but another enterprise publication's poll says that more IS departments are planning to invest in Warp Server than in Windows NT Server.



Yet almost all press coverage is about Windows NT 4.0 — a product that probably won't ship until 1997 and even then still won't contain many important features long present in OS/2.

In fact, Windows NT isn't even close to catching up. If Microsoft doesn't change its plans, the first object-based Windows NT may be Cairo (originally scheduled to ship in 1994, now expected — perhaps — in 1999).

I think it all comes down to this: what you know and what you don't. The broader your knowledge base, the more likely you'll see and acknowledge the benefits of products outside it. The narrower your understanding and experience, the more likely you are to be myopic about a small range of products and platforms and cynical about everything else.

This may be a universal truth, but it applies to the press and today's generation of IS departments more than ever. The universe was once comfortably divided between the desktop PC worlds and the galaxy of big systems. Each had its experts, and both sides could remain ignorant and skeptical of the other. Like it or not, the two groups have collided and have to come to terms with each other.

Change is never easy. But change is especially difficult for PC experts, who, almost by nature, are most experienced with an extremely limited platform: the single, standalone desktop. As a result, those limited primarily to PC expertise are going through the classic four stages of change: denial, resistance, exploration, and commitment.

Kings of denial

It is easier to pretend that platforms such as OS/2 or Unix have no relevance in the market than to learn how to deal with them intelligently. For most good publications, it is this admittedly immature and irrational fear, not some covert conspiracy to promote Microsoft, that leads to most of the misinformation and contradictions you'll read.

For these people, features and technologies really *don't* exist until Microsoft "invents" them. Windows and related products represent almost the entire scope of the software world about which they have any confidence.

Viva la resistance

I am convinced that most of the written criticism of products such as OS/2 and Unix amounts to little more than a wish that these platforms would just go away. But whereas denial is personally destructive to the journalist who misses out on some of the best products available, resistance injures the products.

The motive may be insecurity rather than malice, but the repeated predictions of the demise of OS/2 and Unix technologies and the refusal by the press to applaud their strengths have engendered ill will and serious damage to the products. This is a disgrace, because it has stifled good solutions for IS, not to mention the technical advancement of the industry.

Fortunately for OS/2 and Unix, the problem is most pronounced in the PC press. Publications that began by serving readers with larger systems have fewer problems understanding the benefits of Unix or OS/2. Most of those publications built their readership on Unix, MVS, VMS, and advanced operating systems.

Their positive coverage reached a large-systems readership. That could be one of the reasons why, to the amazement of PC LAN administrators, many large organizations with mission-critical requirements (such as banks, insurance, and health services) standardized on OS/2. That's also why the fact that they did so with great success was never communicated effectively in the PC press.

Exploration

This is the stage in which the press and IS departments feel comfortable enough to seriously consider alternatives to what they know best. Unfortunately, I think only a handful of us from the PC world have fully reached this stage. Many people, including IS departments, still won't consider any solution unless it runs on Windows NT, even if that presents a danger that you'll choose the wrong solution.

This policy is based on fear and presented as a rational cost-savings argument, but it usually comes across to non-Windows users as irrational dedication — the precursor to fanaticism. Ironically, this is the trait most often associated with disappointed Windows users who switched to Unix or OS/2.

There are exceptions, of course. Once again, they seem to crop up mostly in large organizations with a broader background. Even when the specific product experience isn't already on board, it often seems logical to these people that it could cost less in the long run to hire people who understand the right solutions.

Commitment

The final destination, and the healthiest attitude, is a commitment *not to an operating system* but to being open to the right solution without regard to how insecure it makes one feel to try it or write about it. The sooner we *all* get past the other three stages to this point, the sooner the press and IS departments will be better equipped to enable companies to reach their true potential. And, for some, the difference could mean finding the competitive edge.

I don't care which OS you use; just send your e-mail to nicholas_petreley @infoworld.com. Visit my forum at http://www.infoworld.com.

▸ **Windows 95 optical character recognition software**

TextBridge Pro 96 recognizes documents for Web

By Mike Heck

IF YOU'VE OUTGROWN the "lite" optical character recognition (OCR) software that came with your scanner, there are two main upgrade paths: Xerox Corp.'s TextBridge Pro 96 for Windows 95 and Caere Corp.'s OmniPage Pro 7.0. (See Product Reviews, April 15, page 130.)

TextBridge Pro can only handle as many as 50 pages, so it's not a good choice for big jobs. Still, for recognizing most documents and forms, such as letters, memos, and newspaper or magazine articles, TextBridge Pro yielded accurate results and was easy to use.

The main window is topped with a graphic toolbar and a preferences panel. At different stages of the OCR process, additional toolbars appear in the tool area. One thing I didn't like about an otherwise good interface is that the preferences panel options aren't marked, so I couldn't be sure which functions I was changing. That aside, scanning from a Visioneer Inc. PaperPort Vx was as easy as selecting the scanner as the document source and pushing the toolbar's Go button.

In this basic mode, the software automatically performed OCR and let me save the recognized document as an HTML, RTF, or Corel Corp. WordPerfect file. TextBridge did a fair job matching the format of the original document, but graphics were dropped haphazardly into the file.

More exact formatting control required the Preview function, which displayed the page image and let me draw text and graphic zones, yielding an RTF file that closely matched the layout of the source document. And TextBridge files didn't contain multiple frames, so they were easier to edit in a word processor than OmniPage files.

In my accuracy tests on 10 types of common documents, TextBridge made fewer errors than OmniPage Pro 7.0 on four of the easier documents, such as typewritten pages. OmniPage did better in recognizing degraded documents, including faxes, and in retaining formats, such as bold and italic. On documents of medium complexity, the two were about the same.

TextBridge Pro, unlike OmniPage, lets you launch OCR from within your word processor. However, TextBridge uses your word processor for proofing, whereas OmniPage Pro has its own spelling checker and editor — useful if you want to do OCR directly to database or spreadsheet files.

TextBridge let me save pages as TIFF images for later recognition. However, OmniPage Pro has better deferred-processing options; it can schedule jobs at a certain time and has formatting templates.

TextBridge Pro 96 costs less than OmniPage Pro 7.0, and Xerox offers better upgrade and support policies. For basic OCR, I found no reason not to consider TextBridge, but OmniPage Pro is my choice as the overall better product.

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THE BOTTOM LINE

TextBridge Pro 96 for Windows 95

BUY

RENT

TextBridge Pro lets you scan, recognize, and save pages in several formats, including HTML. The software faithfully duplicates page layouts and has very good recognition accuracy.

Pros: Requires little user intervention; works from within most Windows 95 application; recognizes standard image formats; 94.5 percent to 98.9 percent accurate; captures original format without using frames.

Cons: No clear markings for some interface elements; not applicable for high-volume optical character recognition.

***Xerox Corp.,** Palo Alto, Calif.; (800) 248-6550; http://www.xerox.com.*
***Price:** $260 street price, competitive upgrade: $129.*
***Platforms:** Windows 3.x, Windows 95, Windows NT.*

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DISTRIBUTED THINKING · STEWART ALSOP

How much is too much in the world of technology? It's time for a PDA choice

IT'S THE MOMENT OF TRUTH in PDA land for me. I just got my very own Palm Computing Pilot 5000 personal digital assistant. I've also got my very own Sony Electronics Inc. PIC-2000 Magic Link. And my very own Newton MessagePad 130, from Apple Computer Inc.

In my very own personal race to use the most modern toys (er, equipment) possible, I now have to decide which one it is going to be for me.

Sony's device is trailing badly. The company updated its machine so it has backlighting and two PC Card slots. But the Magic Link is bulky and heavy. The system uses a dysfunctional, proprietary e-mail system, developed and then abandoned by AT&T (although I think we know that e-mail isn't what you want these things for anyway.)

It is still a Magic Cap device, and somehow the Magic seems to have gone out of Magic Cap. The real evangelist at Sony for the Magic Link, Mickey Schulhof, got fired a few months ago, so Sony seems to be kind of lukewarm.

However, it still sits on my kitchen table because it happens to have my most up-to-date set of personal phone numbers. So until I figure out how to get those phone numbers out of it and into something else, it is still in the game.

Apple is doing pretty well with the Newton. The company's support for the Newton appears to have survived all of the company's trials, tribulations, and reorganizations.

Given that, the Newton is actually the best developed of the pen-based devices. The handwriting recognition actually works, although the company doesn't even talk about it anymore. The synchronization system has been fixed. Now it is sophisticated and well-supported by a range of applications, mostly oriented toward the Macintosh. (Apple just hasn't made much headway in the Windows software business.)

Most important, the Newton has a core group of real users, who actually use the machine and buy software and talk to each other about it. There aren't very many by PC or even hand-held organizer standards, but they represent the first installed base of pen-based PDA users.

This is something Apple can build on.

Unfortunately, the MessagePad 130 (which also got backlighting and more memory) is still bulky, although it's much more wieldy than the Sony machine. If Apple would introduce a much smaller version of Newton, it would be considered the leader of the pen-based pack.

(Please, all you Sharp Zaurus, Psion, and HP OmniGo users: My silence on the subject is intentional but is not a comment on the value or usability of your favorite device. And, yes, Nokia is about to revolutionize the whole deal with a smart phone that uses the Geos system. And Microsoft will own the category with its new operating system, code-named Pegasus — its third attempt to make a small, functional system, which is usually how many times it takes Microsoft to get it right.)

So you can see it coming. It's the Pilot for me, folks. This thing is way cool because it does one thing painlessly.

I mentioned that I have my personal phone numbers in the Magic Link. About 20 minutes after I opened the Pilot last week, I had gotten 500 records for business contacts into the thing. Eventually, I will get the records out of the Magic Link and they will join the business contacts in the Pilot. And then I will have a personal phone book that goes in my pants pocket with my change and keys.

Along with my cellular phone, the Pilot solves a specific problem I always have had of not being able to find a phone number when I actually need it.

(In case you don't remember, the Pilot is 3 inches by 5 inches by less than 1 inch and weighs 6 ounces. It costs $370 for the 512KB version, called the 5000. Wisely, the Pilot people didn't bother sending me the Pilot 1000, the 128KB version, when it shipped about a month ago. We reviewed the 1000 two weeks ago [see Product Reviews, May 13, page 118]; I recommend spending the extra $70 on the 5000.)

So I can solve that problem with the Pilot. I also have the potential for solving another problem, which is being able to look at my calendar anywhere I want to. The calendar software that comes with the Pilot looks as if it would be pretty good if I were working on my own and neither sharing my schedule with a group nor having my schedule managed by another person on the network.

Scheduling software makers have promised to make their schedules synchronize with the Pilot. If On Technology (which makes the Meeting Maker software we use) ever does one for the Pilot, then I'll solve that problem, too.

So I'm not going to take notes on my Pilot. I'm not going to send or receive messages or get my expenses downloaded or computed automatically. I won't exchange business cards wirelessly with other Pilot users. I won't use the Pilot as a telephone, and I'm sure I'll never surf the World Wide Web on it (a ridiculous notion if I ever heard one). I may not even get to see my calendar on the Pilot, although I really hope I do. Even so, I'm going to bring the Pilot with me everywhere I go from now on.

I can't even say that about my way cool notebook computer.

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NOTES FROM THE FIELD BY ROBERT X. CRINGELY

Bobby's back — long enough to get the scoop on Microsoft Office

PAMMY WAS JITTERY and excitable when I stepped off the plane Tuesday afternoon, and it took the hair of the dog to calm us both down. A double-shot of espresso for her and a two-banger of bourbon for me, right there in an SFO lounge.

She flipped open a brand-new wire-bound reporter's notebook and began spewing what seemed to be years' worth of e- and voice mail from my often not-so-gentle readers.

"First, I think you should not be so, well, forthcoming about me in your column. Those geeky boys are all asking for pictures of me," she said with a shiver. "Tell them no dice."

I nodded. My penance for a protracted stay back East was to listen to the budding reporter showing me the ropes. That first order of business established, Pammy went through the tips.

"Now, you need to get on those people at Micron. One poor guy thought his Transport portable came dead on arrival. I guess they didn't pay a lot of attention to design. Turns out you have to sit on the power button for a three-count before the machine starts up."

I sighed, taking care that she couldn't see my rolling eyes.

"Micron promises that if the price drops on a system within 30 days of ordering, they will refund the difference. But they change configurations and models and play with the prices so often that when you ask for the refund they tell you that the PC you bought has been discontinued."

Honestly, did she think I was the Better Business Bureau?

"Can't you do better than that?" My frustration was showing.

"What about the guy who can't get a Micron Transport because of BIOS problems?"

This was sounding better.

"If he wants a Windows 95 machine, no problem. Micron will ship today. But ask for it to run DOS and Windows 3.x and you're out of luck. They say DOS won't run on it and they don't know why."

Better, but really, she writes one column and she thinks she can do this job. I told her so.

Bobby makes a mistake

"Well, Bobby, I'm sorry, but do you just make this stuff up? I phoned Zenith Data Systems and said I wanted to buy a Zeo, and the salesman said, 'Fine, sure, no problem.' ZDS may be in trouble, but they are definitely taking orders."

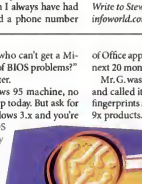
Everyone's a critic, I thought, as I stood up to go.

"So I guess you're not interested in what's happening in Redmond?" Pammy asked. I could only imagine.

"What is it? A Memorial Day parade?"

It was a parade, all right. A parade of Microsoft execs, led by Bill G. himself, marching all over the Office development team. A parade of Office apps marching out the door over the next 20 months.

Mr. G. was publicly unhappy with Office 95 and called it an "interim" product. Now, his fingerprints are all over the spec for the Office 9x products. Expect to see at least three versions: a basic version, a professional version, and — proving once again that Microsoft is firmly atop the Internet bandwagon — an Internet edition.



This latter edition shows that Bill is serious about making Internet connections part of every Microsoft product. The version is likely to include Front Page and perhaps even Internet Studio.

The only problem with the strategy may be that software retailers don't like parades. Too many SKUs, too little shelf space.

"PAMMY, YOU ALWAYS save the best for last," I said, eyeing the departures board for a flight to Seattle.

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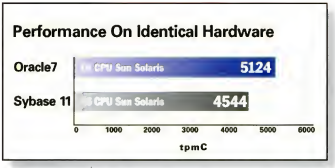

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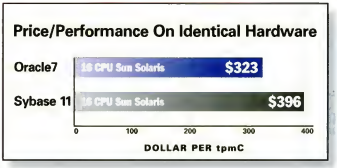

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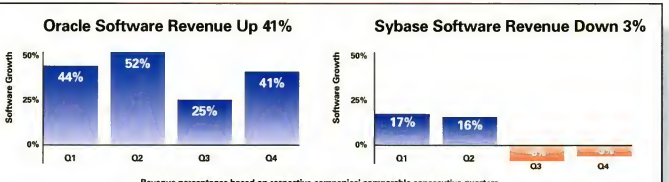
☑ Concurrent Server: Row-Level Locking	"Sybase System 11...does not support row-level locking." — **Information Week**

The Market Has Spoken



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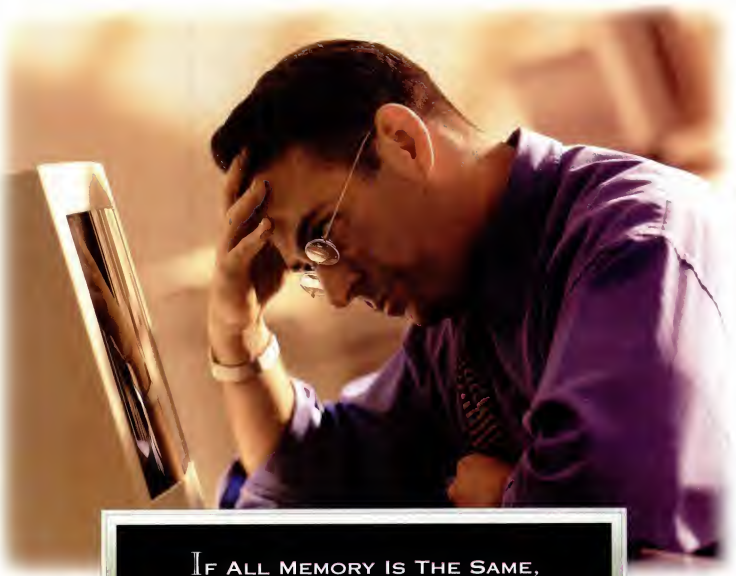

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